DOCUMENT RESUME

ED 140 026 CE 011 295

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TITLE Research & Information on Employment & Training. Proceedings of a Symposium (Hershey Convention Center, Hershey, Pennsylvania, October 14-15, 1976).
INSTITUTION Pennsylvania State Dept. of Education, Harrisburg.
PUB DATE Oct 76
NOTE 164p.; For a related document see ED 121 987

EDRS PRICE MF-$0.83 HC-$8.69 Plus Postage.
DESCRIPTORS College Graduates; *Economic Research; Educational Benefits; *Educational Demand; *Educational Research; *Educational Supply; Employment Services; Employment Statistics; *Labor Economics; Labor Market; Manpower Needs; Occupational Surveys; Vocational Education

ABSTRACT

A compilation of 21 presentations given at a symposium held to improve communications between individuals and agencies (education, government and private industry) which produce or use occupational research and information for program planning and decisionmaking contains the following titles: Some Thoughts on Economic Illiteracy; We Can Survive: An Optimistic and Realistic View of the Future; And Now--A Word from the Private Sector; Comprehensive Employment Training Act, Expectations and Realities; Pennsylvania Occupational Statistics Program; Underemployment: Conceptual Issues; Work--Not School--Comes First; Cost-Effectiveness of Work Experience in Secondary Schools; A Perspective on "Assessing Vocational Education Research and Development"; Future Labor Supply for Lower Level Occupations; The Role of Supply and Demand Forces in the Changing Market for College Graduates; Projections of Science and Engineering Ph.D. Supply and Use: A Comparison on NSF and BLS Publications; How Useful in Employment Is College Education?; Strategies and Procedures for Using Occupational Information at a Career Development and Placement Center; Pennsylvania Postsecondary Degree Programs: Need, Availability, Supply, Oversupply; Industry Looks at Manpower Needs; A Bottomline Viewpoint: Industry Looks at Education; Labor's Challenge to Education and Industry; Job Information Service and Automatic Matching: New Concept for Public Employment Service; Analyzing Jobs as a Solution to Occupational Problems; and The Impact of Equal Opportunity. A list of participants is appended. (EM)

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Research & Information on Employment & Training

A Symposium
Sponsored By
Pennsylvania State Board of Education
In Cooperation With
Pennsylvania Department of Education
Pennsylvania Department of Labor and Industry
Governor's Office for Federal Manpower Coordination
Temple University (Center for Economic Education) School of Business Administration
U.S. Department of Labor, Bureau of Labor Statistics, Region III

Proceedings of a Symposium
Held at the Hershey Convention Center,
Hershey, Pennsylvania
October 14-15, 1976

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PREFACE

On October 14-15, 1976, a symposium on occupational research and information was held under the sponsorship of the Pennsylvania State Board of Education in cooperation with:

- Pennsylvania Department of Education
- Pennsylvania Department of Labor and Industry
- Governor's Office for Federal Manpower Coordination
- Temple University (Center for Economic Education)
  School of Business Administration
- U.S. Department of Labor, Bureau of Labor Statistics, Region III

Individuals representing education, government and private industry addressed themselves to the need for occupational research and information as well as problems of program and policy implementation.

The purpose of the symposium was to bring together individuals interested in generating and using occupational information for educational and economic planning and decision making. Equally important, it was conducted to improve communications among local, state and federal agencies which produce and/or use occupational research and information. Finally, an all-encompassing objective was to address the communications gap between education and the world of work.

We have heard those purposes stated in the past and the present; they are not new. In fact, they are very common objectives, ones which have been repeated by many, including myself, over the past 10 years or more as an employe of private industry and as a member of the Pennsylvania State Board of Education. Moreover, I feel certain that I'll continue to repeat and list them as priorities, because they are essential to maintain and improve the use of human resources, capabilities and conditions of the labor market. Further, their accomplishment is not a single effort, but one which must be continually addressed because of changing social, economic and educational conditions.

As a result of these beliefs, the Committee for Vocational Education of the Pennsylvania State Board of Education has continued the sponsorship of an occupational research symposium and offers the symposium proceedings as an effort toward addressing those education and work priorities.

Gail L. Rose, Chairman
Committee for Vocational Education
Pennsylvania State Board of Education

Introduction

Changing economic, occupational and demographic variables have had a substantial impact on education and employment and training programs. As a result, federal legislation and civic-minded individuals have defined problems and developed programs which emphasize education and work relationships. These programs, focusing on vocational training, career counseling and job placement, are intended to provide opportunities for knowledge, skill development and employment for individuals who desire it.

If goals are to be achieved, certain political, economic and educational forces must parallel each other. The objectives and procedures are often unclear, as the efforts of the 1960s and 1970s have shown. Nonetheless, the desire to attain that goal remains as individuals and agencies, both public and private, work together to clarify specific problems and develop effective programs to achieve a better work life for all people. One effort was this symposium, where diverse groups with common objectives addressed certain issues, problems and their solutions.

Objectives and Procedures

As in the past two symposiums and with this symposium, sponsored by the State Board of Education, a major purpose was to improve communications between individuals and federal, state and local agencies which produce or use occupational research and related information for program planning and decision-making. Additionally, this year's symposium involved representatives of private industry in discussions on education, work issues and concerns. The theme, "Occupational Research and Information: People, Problems, Programs--A Local, State and Federal Cooperative," was the basis for four concurrent group sessions. One session focused on the Comprehensive Employment and Training Act, labor market data and methodology; another addressed the occupational research and information for less than the baccalaureate degree labor market; a third group dealt with occupational research and information for the baccalaureate and higher degree labor market; and the fourth addressed private industry, government and education relationships and issues.

Following the presentations within each group, selected discussants reacted to each topic. This was followed by an audience question-and-answer period and a general summary presented in a closing general session.

The opening general session, "A New Look at the Economic Environment," was intended to follow through on a suggestion by Seymour L. Wolfbein, a speaker at last year's symposium. He identified, in those deliberations, a common concern: "What assumptions shall we make for the future." He stated:

> "As we begin the fourth quarter of the century I think there are a number of critically important and surpassingly important reversals occurring in this country. A really big switch has occurred between what happened in the third quarter of the century and the beginning of the fourth. Ponder it sometime and see if it really isn't true that if we look these straight in the eye, we might come out with some quite different assessments--even in the technology of how we make our assumptions" (1975 Proceedings, p. 132).

Additionally, two keynote speeches were given. One focused on the employment and unemployment situation in the United States; and the second defined the educational and governmental concerns of private industry. Both topics were considered to be of general interest to all participants.

As in past years, the symposium procedures attempted to offer an opportunity to participate in the planning and conduct of the program. By including individuals from different agencies with common interests in occupational research and information, we hoped to foster a cooperative atmosphere in defining future needs and efforts.

Presentation Highlights

The purpose of this section is to reiterate major points and issues raised in the presentations. More precisely, it attempts to more concisely reflect the significant issues, major concerns and interests of the symposium participants. This author accepts full responsibility for any errors of omission and commission.

In the opening general session discussion focused on the public's understanding of economics and on the past, present and future economic environment. Emphasis was given to the need for universal economic education so that if the principles of economics were more widely understood and respected, better policy decisions would be made for the benefit of society.

In the presentation of an optimistic future scenario, "The Next 200 Years," it was shown that growth is possible and needed, because it will give the necessary knowledge and resources to solve problems of today, and the possibility of surviving the unforeseen. Implications for future employment included greater automation, increased leisure and a steady trend toward more employment in certain service occupations.

The session on the Comprehensive Employment and Training Act (CETA) focused on a national evaluation of that act, and the local administrator's (prime sponsor) program operational concerns. One of the findings of this evaluation was that decentralization of employment and training programs, a primary expectation of Congress, did take place. Another finding was that the prime sponsors did many of the same things that were done in the past, though some changes did occur. For example, there was a shift from on-the-job training to work experience programs. Finally, in regard to whether CETA was more, or less, efficient than the previous Manpower Development Training Act, it was stated that no definitive answer exists at this time. The lack of definitive answers rests with the problem of what to measure, and with identifying the most realiable and valid variables.

From a prime sponsor's viewpoint, major concerns relate to definition and service delivery problems. Several major questions were raised: "Who are the unemployed and who are the clients that the prime sponsors must serve?"

Additionally, concern was expressed for the excessive time spent on defining and developing delivery systems instead of dealing with how to identify clients. Specifically, definitions are needed to answer questions such as, "Are the clients long-term, hard-core unemployed, or are they skilled persons

who have been furloughed on a long-term basis but will probably return to work when the economy improves?" Job-placement services were another major concern. It was indicated that in certain labor market areas there are many jobs that people don't want. And if all the unemployed in a certain area would take those jobs, the result would be few unemployed persons. Essentially, this relates to the need for effectively matching individual job requirements with individual capabilities and interests. A final concern was that existing vocational education creates a major problem because of the written law which states that a three-level agreement must be made among local school boards, prime sponsors and the appropriate state agencies in order to provide certain program offerings. Also, the point was made that private industry desires to do its own training rather than having it done by government agencies.

The session on labor market data and methodology included two presentations, "Pennsylvania Occupational Statistics Program," and "Underemployment: Conceptual Issues."

The Occupational Employment Statistics Program was outlined--purpose, design, and outcomes. It is a cooperative effort between the state employment service agencies and the U.S. Department of Labor. The program was designed to collect data and develop statistical information to measure the occupational growth and the changing occupational structure of the labor force in the United States, the individual states and local labor-markets. This information can provide a basis for projecting occupational requirements and satisfy certain needs specified in the legislation for vocational education and human resources training. Moreover, local employment service offices can use information on industry occupational patterns to help locate employment opportunities for applicants.

The presentation on underemployment explored implications of this labor market problem. A comprehensive definition of underemployment was offered as follows:

> An involuntary employment condition where workers are in jobs. Part time or full time, in which their current skills, including formal and work-experience training, are technically underutilized and thus undervalued, relative to those of other individuals of similar ability who have made equivalent investments in skill development.

Two major forms of underemployment were defined: intraskill and interskill. Intraskill occurs when individuals within a skill group are less able to use their skills than is the average individual from this group. Interskill refers to a condition where an individual in a occupational group is underutilized in employment relative to individuals from other occupational groups where training costs are the same but the nature of occupational preparation differs.

In the session, "Occupational Research and Information for Less Than the Baccalaureate Degree Labor Market," the following issues were addressed: work and school relationship, the effectiveness of work-experience programs, the assessment of federally sponsored vocational education research, and the labor supply for lower-level occupations.

The presentation, "Work--Not School--Comes First," focused on the need to view the worker as a citizen, not merely a tool in the industrial society of today. It was argued that the world of work is pre-eminent--it even has a priority over schooling in the sense that it directs the educational system and a child's development and the resulting reflect the world of work in many ways.

In recent years school-supervised work-experience programs have proliferated in secondary schools. From the presentation on the preliminary results of a study to determine the costs and benefits associated with those programs, a number of positive findings to support those programs were offered. For example, it was found that participation in a work-experience program, especially in a cooperative program in which jobs are related to courses of study, probably enhances a student's employability, increases the "relevance" of education, reduces the dropout rate, and yields greater satisfaction with both school and jobs. Finally, immediately after graduation, participants in such programs do not appear to earn higher wages, but over a longer period of time, they may have greater opportunities for preferred jobs in certain areas.

"A Perspective on Assessing Vocational Education Research and Development" reviews a study conducted by the Committee on Vocational Education Research and Development of the National Academy of Sciences. The major conclusions of this study was that $250 million spent by the U.S. Office of Education on Vocational Education Research and Development over the last ten years have not had documented, widespread impact. Although there was an absence of adequate data and models for a rigorous evaluation, the available data do not indicate that vocational education research and development findings and products have had an influence on the knowledge, skills or employability of large numbers of students. The committee felt that vocational education research and development shares with educational research and development a lack of both demonstrated impact on students and methods for rigorously measuring impact.

The final paper of this session analyzes the labor supply for lower-level occupations for the 1970s and mid-1980s. Indications are that there will be a shortage of people who traditionally fill these job openings. These lower-level occupations, described as jobs of last resort, are taken by people when nothing else is available. This occupational group includes most laborer occupations as well as certain low-skilled, personal-service occupations such as domestics, cleaning service workers, cooks and kitchen workers.

From projections based on trends for the 1960s and 1970s and extended to 1985, the most significant change expected is the sharp reduction in the proportion of young people in the labor force. These people were identified as the ones who had increasingly been employed in those lower level jobs, at least temporarily. Moreover, it was pointed out, a greater number of adult workers are going to be better educated and less willing to take these jobs. As a result, there will be relative "shortages" rather than a "surplus" of college-trained workers.

Additionally, the review of past occupational trends identified the following major sources of the lower-level labor force: black workers, immigrants, migrants from farm to city, youth and women. From 1960 to 1970 it was found that there was a significant replacement of black workers in the lower-level occupations. From a projection of the labor force to 1980 and 1985, by broad occupation group and from a comparison of these results with the Bureau of Labor Statistics' projections of employment, the following conclusions were made: the labor supply

will grow more rapidly than demand for the higher level occupations--professional, technical and managerial--and the lower level occupations will experience labor-supply shortages. The reduced supply of youth for these jobs in the 1980s was defined as the major contributing factor.

The group session, "Occupational Research and Information for the Baccalaureate and Higher Degree Labor Market," focused on the higher education response to the changing labor market.

The presentation, "The Role of Supply and Demand Forces in the Changing Market for College Graduates," highlighted the job market decline for the college graduates in the 1970s. Specifically, it was indicated that the income of young graduates fell in relation to that of their high school peers; proportionately fewer college men and women obtained professional jobs than in the past; many recent bachelor's master's and doctoral degree graduates could not find positions in the fields in which they were trained, while the cost of college continued to rise rapidly.

The 1970s' deterioration of the graduate job market and resultant decline in the economic rewards to higher education can be gauged in several ways. These include comparisons of income, starting salaries, types of jobs held by graduates, and rates of return to investments, which take into account direct and previous costs of education.

At the same time that the income and employment position of college graduates weakened in the 1970s, the direct costs of college continued to rise, reducing the rate of return to the investment. The downturn in the college job market had substantial adverse effects on the income, employment and return to the college investment, with the young graduates of the period bearing the brunt of the change in the market.

The causes of change include (1) the cyclic state of the economy, which weakened after 1969, possibly reducing demand for new graduates in the period; and (2) changes in demand due to less research-and-development spending and slower growth of employment of college-trained people in such industries as "education" and "the federal government."

From the presentation, "Projections of Science and Engineering Ph.D. Supply and Use..." a number of differences and similarities were defined in a comparison of the National Science Foundation and Bureau of Labor Statistics projections of the supply and demand for doctorates in science and engineering. First, both sets of projections start with the same set of broad assumptions regarding gross national product and economic trends. The most significant difference, a considerably higher total supply of science and engineering Ph.Ds. in the BLS model, is due to the use of a set of enrollment and degree projections prepared by the Office of Education. However, the enrollment and degree projections have since been revised substantially downward. Correction for this difference brings the BLS and NSF supply projections to within 11 per cent of each other and the demand projections to within three per cent. Other unresolved differences are due to differences in more specific assumptions, such as the proportion of baccalaureates entering graduate school, the trend in pupil/teacher ratio, etc. BLS demand projections are generally higher than NSFs because more faculty are needed to teach the larger number of students in the

BLS model and because BLS projects constant R&D spending at a level almost 15 per cent higher than NSF in 1985. Conclusions resulting from the analysis are: (1) closer coordination between BLS and NSF is necessary to avoid apparent conflicts between two sets of projections; and (2) in spite of the differences in the two sets of projections, both BLS and NSF show a large surplus of Ph.D. recipients for traditional Ph.D. jobs in the 1972-85 period.

The study to determine the usefulness of a college education to those graduates pursuing various careers provided specific answers to questions, such as how graduates use their education in their work and what recommendations they would make to help future generations prepare for employment.

The major findings, based on the results of surveys of college graduates, seemed to render moot the current arguments supporting either "vocationalism" or "humanism." Specifically, those recent college graduates who were employed found substantial vocational value in humanistic curricula. They also found general applicability or basic usefulness in business curricula that educators label vocational. A major conclusion of this study suggests that the nation's colleges re-examine the curricula offered for future students, so that the next generation may graduate into a world of uncertainties and change with its fundamentals firm and its adaptability a foregone conclusion.

In an outline of strategies and procedures for using occupational information for a career development and placement center, emphasis was placed on the importances of establishing objectives and identifying certain assumptions about career development and placement. A center's major objective was defined as assisting students in exploring, confirming and implementing their life/career plans and goals. Career concerns of individuals are viewed as developmental and, therefore, educational agencies should provide services that potentially benefit any student.

The final presentation for the higher education occuaptional research session focused on an overview of "Pennsylvania Postsecondary Degree Programs: Need, Availability, Supply, Oversupply." It was concerned not only with possible program duplication but with the need to identify gaps in programs provided. The proposition advanced was that one cannot determine whether program duplication exists and whether such co-existence of programs might be deemed wasteful until a broader understanding of the need and availability of programs in relationship one to the other is established.

The fourth concurrent session focused on private industry's view of education and on selected concerns on employment issues and problems.

Perceptions by people representing private industry pointed to the need for continuous communications between businesses and schools. Further, there was a defined need to improve the mechanisms for putting the unemployed to work and those seeking jobs for the first time. Additionally, concern was expressed for the development and/or improvement of strategies and procedures for gathering and using labor market information. It was stated that both government and education can do a better job of gathering information and placing value on the information and projections they receive from the private sector. Additionally, the point was made that a symposium such as this one needs greater input from employers and workers.

The second presentation focused on job information services and automatic matching. The public employment service is deeply involved with people seeking work and receives about 15 million applicants and six million job openings a year. It estimates that it fills 60 to 65 per cent of those job openings.

To meet the needs of the increased work load and specifically the greater number of individuals needing employment services, a job information service was developed. Parallelling the development of the job information service is the job bank, a method of exposing those six million job orders (a national figure) to the clients who come to the employment service in need of help to find jobs. There are many ways of alerting job seekers to jobs: printed media, microfiche, etc. Presently we are attempting to improve self-help techniques for people who can help themselves. This is for the literate individual who understands the relationship of skills being asked for and his/her own skills in trying to make an effective job match. In essence, the automated job-matching system is instructed to read the job files once a day, and for those job orders it selects possible applicants for referrals for those jobs orders on the following day. The initial selection was made by having the computer match job requirements with individual qualifications, and thus minimizing the human activity in the selection of individuals for job referrals. This process can occur in one of two ways, either using a job order to find applicants, or for a given applicant to find possible jobs. Another way for job transaction is to have the computer do the matching instantaneously.

The system has value for organizations sponsored by the Comprehensive Employment and Training Act, welfare organizations, school systems--both secondary and postsecondary.

Analyzing jobs as a solution to occupational problems has been a continuing priority for both employers and those involved in education, training and placement. This presentation indicated that one of the important concerns of the job service office is to make people aware that they have to know their jobs--the requirements needed to perform the job in a satisfactory and productive manner. It was emphasized that if people in education, employers and the employment service do not know what is job-related and how to establish valid hiring requirements, then a massive effort must be made to train them. There probably are jobs for everybody, and those jobs are based on qualifications. Agencies, such as education, labor, government, private industry, etc., can collectively address this task realistically.

In the presentation, "The Impact of Equal Opportunity," three areas related to the work force of the Commonwealth of Pennsylvania were reviewed: (1) analysis of unemployment and underemployment figures for minorities in the Commonwealth work force, (2) approaches which can be used to remedy existing inequities surrounding unemployment and underemployment; and (3) approaches to be used by the Bureau of Affirmative Action to equalize employment opportunity. Because of these employment patterns, it is sometimes wrongly inferred that women and minorities "naturally belong" in particular jobs. Consequently, they are sometimes wrongly--and unlawfully--"steered" into certain positions at the earliest stages of the selection process. Later, after being hired, many individuals in lower level positions find they are being held in those positions for the convenience of their supervisors under policies which make it difficult for one to apply for a transfer without in-

forming his/her supervisor in advance. Since minorities and women are usually grouped in the lower-level categories, such policies tend to adversely affect them. Achieving the goals of hiring, retaining, training and promoting qualified women and minorities in every phase of the Commonwealth work force and completely eradicating job and wage disparities are the imports of the affirmative action program.

In a keynote address, John J. O'Connell, vice president of industrial relations, Bethlehem Steel Corporation, highlighted the presentation "The Concerns of Private Industry." He stated that private industry is trying very hard to provide totally fair and equal opportunities for employment and career progress. Private industry cannot move as far and as fast as it wants to go if young people don't get the kind of education and training that matches industry's needs, if they don't apply for the career jobs offered and advertised so widely, and if they don't work together toward common goals, he said.

He stated it is a truism that you cannot educate, train, motivate, and guide people into jobs that don't exist. And our state surely needs jobs in the private sector, which provides five out of every six jobs in our country and which generates the tax revenues that support the activities of the public sector, he stated. He emphasized we have a tremendous industrial base in this state. If we strengthen it and build on it, we will have the best chance of fully meeting the employment needs of a growing work force--and that is worthy of the very highest priority, he said.

In another keynote address, Julius Shiskin, commissioner of the Bureau of Labor Statistics, commented on the employment and unemployment situation in the United States, emphasizing the public's interest in the need for full employment. Although there has been little agreement on just what full employment is, how unemployment should be defined, or what specific data should be used in judging the performance of the economy, there is even disagreement on whether the focus should be on the employment or the unemployment statistics.

The media, as well as professional literature, have focused mostly on unemployment. More specifically, the problem is measuring employment and unemployment and using these measures in assessing economic performance. While both the developers and users of labor force statistics agree that no single unemployment measure can serve all the purposes for which such data are needed, there is much diverse opinion about the most appropriate overall measure. Thus, no single way of measuring unemployment can satisfy all analytical or identical interests.

The full text of Shiskin's speech is not presented in this publication. Should readers be interested in reviewing a more detailed description of the employment and unemployment discussion, they are advised to read "Employment and Unemployment: The Doughnut or the Hole?" in the February, 1976, issue of The Monthly Labor Review.

Commentary

The contents of these preceedings offer a rich and varied panorama of research and related information on the theme, "Occupational Research and Information: People, Problems, Programs--A Local, State and Federal Cooperative." Such research and information-gathering are undertaken with the hope that it will eventually lead to

applications that become beneficial to all involved in the education and work partnership. As such research and information is pursued, it may supply concepts, strategies or procedures that can be applied to particular human resource problems. Examples include kinds of labor market information that will permit educators to offer occupational curricula based on labor market needs; labor market information that will provide the opportunity for students to make rational career choices and decisions; and help in addressing the unemployment and underemployment problems.

To a large degree, of course, responsibility for application is incumbent on those individuals and groups who are aware of specific problems upon which this research needs to be focused. Becoming aware of current resources, they may be able to select those concepts, strategies or procedures that provide solutions. Or, finding the absence of suitable knowledge, they can call attention to the need.

We hope, therefore, that the symposium and this report will not only aid and encourage researchers but, more important, that it will also serve policy makers and decision makers at the local, state and federal levels. This publication can be considered a survey of the peoples' needs, their problems and program solutions. It is expected that this can be drawn upon for application and use to find areas where new efforts or revitalized efforts are needed.

We already have evidence that the symposium will help improve the dialogue among private industry, education and government, since some of those participants have related that their experiences at the symposium led them to develop new programs to deal with communication problems. We hope that these few efforts at improving communications will multiply and overcome the many deficiencies that exist in human resource development and the education to work transition.

SOME THOUGHTS ON ECONOMIC ILLITERACY

Andrew Weintraub*

Myopia is a likely influence on one's analytical abilities when the subject for study is the analyst's own activities. Thus, the government regulator, after assessing the effects of past regulation and ignoring the cogent arguments of Milton Friedman, George Stigler and other University of Chicago economists, concludes that in the public interest more regulation is necessary. Of course, the fact that this means more taxes for consumers and more income for the regulators is one of the unfortunate costs of protecting the public.

Periodically the American Medical Association (AMA), after looking at the qualifications of foreign-trained physicians, concludes that the public interest demands changes which would make it more difficult for them to enter medical practice. AMA cites the resulting higher income benefits accruing to physicians as necessary to guarantee high technical and ethical standards, a recognition of the fact that competence and honesty have their price, even at the expense of less medical services.

In spite of these warnings, I now proceed to analyze the costs of economic illiteracy, a condition which I, as director of the Temple University Center for Economic Education, am pledged to eradicate--of course, in the public interest.

Given the large and growing number of mistakes in government economics policy, we have witnessed in recent years a call for a greater understanding of the economic system and economics in general. Leonard Silk in the New York Times, Lindley Clark in the Wall Street Journal, Louis Rukeyser of Wall Street Week, are all prominent journalists who have identified this need. The Advertising Council, the Joint Council on Economic Education, and Invest in America are among the prominent organizations that are raising and spending money on behalf of economic education, each working with annual multi-million dollar budgets. All this is not to mention the various corporations that have recently launched aggressive advertising campaigns to try and "correct" such popular views as "the oil companies are running the economy" rather than vice versa.

With all these resources going into such an effort, I'd like to raise the question: What is the nature of this chronic ailment, known as economic illiteracy, which has been around for a long time, but which only recently has begun to inflict perceptible costs on society? What are these costs? And how do we avoid them?

I prefer to discuss economic illiteracy within the framework of what I perceive as widely accepted social goals: The maximization of real per capita income and the minimization of the social costs of attaining that objective, i.e. pollution and other social disamenities! Any individual or group behavior, including that of the government, which is inconsistent with these objectives is viewed as a function of economic illiteracy. Of course, all behavior must be considered subject to the constraint of preserving democratic ideals and individual freedom.

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*Director, Center for Economic Education, Temple University.

Few would argue against such lofty ideals, although for many their personal behavior or interests may be in contradiction to them.

From my viewpoint, there are three forms of functional economic illiteracy: Basic ignorance--probably the most common form; basic heresy--probably the most important form in the short run, where one's economic understanding is forsaken or employed solely for the satisfaction of personal or constituent interest at the expense of someone else; and, the cultural lag--a natural result of a world where new knowledge is produced every day and time is necessary before that knowledge percolates throughout society.

An example of basic ignorance involves the relationship between the money supply and interest rates--a topic which has been discussed from time-to-time in the current presidential campaign. Most people, including at least one of the candidates, think that an increase in the supply of money--given the demand--will produce lower interest rates, a desirable result for stimulating investments in housing, plant and equipment, etc. But ask any monetary economist about this relationship and you'll be told the opposite: During periods when the money supply is expanding too rapidly, interest rates rise; and vice versa. The reason for this lies in the fact that lenders, anticipating more inflation as a result of the monetary expansion, ask interest rates high enough to compensate for their expectations. The result of it all is a reduced, rather than an increased amount of investment activity, and, something we have all experienced recently, a decline in real per capita income. As a result the prescription aggravates rather than relieves the malady.

There are lots of other examples associated with ignorance, such as the dichotomy between the desired and actual effects of wage and price controls, or the notion that government programs provide services which are essentially free or cheaper than the alternatives available from the private sector. A example is the myth that jobs-creation spending of a given amount (Humprey-Hawkins) somehow will produce more total employment than an equal amount of unemployment compensation.

What about basic heresy? Probably the best example one can think of here involves minimum wage legislation. There is no reputable economist (identified as those who publish in the recognized professional journals), who would not agree that mimimum wage legislation produces unemployment. Yet legislators and union leaders insist on periodic increases and broader coverage for the minimum wage. I question whether they are completely ignorant of the basic principle of economics known as the "law of demand", which states that at higher prices, people buy less. Their essentially anti-social support of minimum wage laws, in spite of their plea of sympathy for low wage workers, is due to their desire to eliminate competition from low wage areas, e.g. the South. Certainly this is designed to protect the jobs of their rank and file or constituents. The social cost of this may be measured by the output not produced by those teenagers and other less skilled workers who are unemployed for long periods of time, because of the minimum wage.

Finally, the time lag between the generation and digestion of economic knowledge is a fact of life which can't be avoided but which might be reduced if proper action is taken. This is exemplified by the amount of time it is taking for non-economists to recognize the contribution that economic understanding can make to the solution of many heretofore "non-economic" social

problems. For instance, criminals have hitherto been viewed as sick individuals, social misfits whose anti-social activities are the result of irrational mental processes. Well, economists take the opposite view, the criminal activity is the result of a rational decision-making process, where the benefits and costs of all the alternatives are considered and the occupational activity--legal or illegal--with the highest benefit-cost ratio is chosen. Depending on which view is correct, more emphasis will be placed on rehabilitative policies or on more law enforcement and stiffer penalties.

In fact, every day there is more and more evidence to suggest that economists are right; that social policy would be more successful if directed more toward deterrence than rehabilitation. Here, I think its just a matter of time before legislation and judicial behavior reflect this knowledge. This is an example of where economists and their friends in the media must play a larger role in bringing new knowledge to light as soon as possible.

This, of course, is a very brief survey of the nature of economic illiteracy. It is fairly easy to identify, and although the actual costs are more difficult to estimate, there is no doubt that they exist and that they are borne by all of us in the form of lower real per capita income.

The next question is: What, if anything, might be done to reduce the degree of economic illiteracy?

Many would take the view that economic education, like other types of education, is a public good and, like other public goods, ought to be financed, if not produced, by the government. What is a public good?

A public good is something for which there is a recognized social need, but for which there is no incentive on the part of a private individual to produce or buy him/herself. The lack of incentive results from the fact that the purchase or production of goods by any one individual involves its consumption by everyone. There are considerable externalities and therefore, no particular advantage to the buyer. Thus, any individual is reluctant to purchase it for him/herself, since if someone else buys it, everyone else will benefit anyway--the case of the free rider. Needless to say, if everyone has that attitude, no one will buy; produce, or enjoy the benefits of the commodity. Thus, a political decision must be made to buy the good collectively.

The most classic example of a public good is national defense. Even if two or more people could afford $100 billion per year, neither would buy national defense, preferring to be the free rider. It is the quality of national defense which dictates that its purchase be made on behalf of society as a whole by the federal government.

That is not to say, of course, that all government expenditures are for public goods as defined above. Some kinds of government expenditures are for goods which have both public and private characteristics, and some are for goods which are solely private in nature.

An old age retirement annuity, for example, is a private good provided by the government, i.e. social security (SS). In the private sector, individuals have expressed a clear willingness to pay cost covering prices for old age annuities in the absence of legal coercion. And the benefits of their purchase accrue

almost entirely to them and their families, although some proponents of compulsory purchase of annuities would further argue that there is a social benefit in as much as the insured does not become a ward of the state. This is all fine, except that the recipients of SS in the past have indeed been wards of the state in the sense that the return on their investment has been in excess of what they could have earned for a comparable risk elsewhere, the source of that high return being current worker taxpayers, i.e. the state. Of course, today, SS recipients are not wards of the state. They are its benefactors, receiving rates of return below that which the market would provide.

Education, on the other hand, is a commodity which includes elements of both public and private goods. It pays a private return to most of those who invest in it, or, more correctly, to those in whom the investment is made. This return takes the form of higher income, most often measurable in terms of money, but more increasingly so, in psychic units. It also pays a return which accrues to the society as a whole but which is considerable more difficult to measure. Nevertheless, it exists in the form of our ability to communicate, to obey traffic signals, to understand units of measurement, to respect a set of common moral and legal values, etc. But these social benefits, as opposed to the private ones, can't be identified as responsible for influencing the parameters which determine the distribution of income.

It is the accepted, if never measured, fact chat these social or external benefits exist. And it it precisely this "knowledge" which has been used as the rationale for government financing of education at all levels. Essentially, the rationale is that since these social benefits are not considered in the investment decision made by individuals interested mainly in the private benefits of an education, some kind of government involvement is necessary such that sufficient amounts of these social benefits be produced.

In this sense, universal economic education may be characterized as a public good. If the principles of economics were more widely understood and respected, more correct policy decisions would be made by government and government officials, to the benefit of society as a whole. At the same time, however, the incentive for any individual to acquire economic knowledge is very slight, owing to the neglible private return on such an investment (even for professional economists!).

But the public good aspect of economic education is somewhat different from that of other forms of education. Where basic education requires government intervention in the economy to satisfy a recognized need, the public good nature of economic education exists only after the government has intervened elsewhere in the economy. And the government's production of economic education, if successful, ought to reduce that government intervention.

In a laissez-faire economy, a widespread popular understanding of economics would serve no more social purpose than a widespread popular understanding of physics or chemistry. Just as a stone dropped from the tenth floor doesn't know anything about the law of gravity, so the businessperson acting in his or her own interest needn't have read Samuelson's Economics. The economy will still behave as economists have always predicted without its members having any knowledge of why.

Beyond the production of public goods, as the government begins to interfere in the private economy, making a significant number of mistakes in economic policy, economic education itself becomes more and more public good.

An economically literate society, interested in maximizing the material well-being of its inhabitants, would not impose minimum wage laws as antipoverty devices; would not employ wage and price controls to combat inflation; would not control crude oil or natural gas prices during periods of growing scarcity of these natural resources; would not think of increasing the money supply to lower interest rates; would not resort to a wide variety of programs and legislation; the results of which belie their expressed purpose.

Nevertheless, there is another problem here: Can economic literacy encourage people to vote against their own interests? Actually, it might do just the opposite. That is, it might increase the abuses of special interest groups who formally knew what they wanted, and now know how to get it. Indeed, the people who are most likely to remember their instruction in economics are those who have the most to gain. And by no means second to the professional economist in this matter is the political entrepreneur.

Thus, there is a real question regarding the desirability of increasing economic literacy. The results of such a move are not entirely predictable. It isn't clear whether government interference in the private sector will increase or subside as a result, and that is the crucial issue. The social costs of functional economic illiteracy are a direct function of government involvement in the economy. And the best way to reduce those costs is to reduce that involvement.

There are various ways of doing this and I won't go into the alternatives in any depth. Private propaganda, politicians who promise and deliver on this issue, constitutional amendments to limit the size and growth of government budgets--all of these are possible routes. In a slightly different vein, disobeying some laws would also produce the desired social effects.

Thus, as Director of Temple University's Center for Economic Education, I'm in no position to judge the efficacy of a job well done. Even if my students all get "A's", there's no guarantee that the results of their economic literacy will yield social dividends.

WE CAN SURVIVE: AN OPTIMISTIC AND REALISTIC VIEW OF THE FUTURE

Leon C. Martel*

My purpose this afternoon is twofold: first, to outline the main points of Hudson Institute's scenario for the future presented in our new book, The Next 200 Years, and second, with this scenario as context to suggest some implications that flow from it for future patterns of employment.

First, then, let me talk about the scenario that we have developed in our new book. What particularly distinguishes it to most people who have examined it is the sharp contrast we have made to the gloom and doom projections that have been frequently heard in the last ten to fifteen years. The projections were certainly influenced in part by the decade of malaise in which many of them were written--a decade of assassinations, of riots in the streets, of war abroad, of searing domestic crises here at home, and of loss of confidence in our two pillar institutions of the economy and government, through recession and the forced resignations of our Vice President and President. These projections have forecast a world of increased shortages and hardship, a world running out of everything--except people and pollution.

Perhaps the foremost among these studies, and certainly the most influential, was the first study of the Club of Rome, entitled The Limits to Growth and published in 1972. It presented an elaborate computer simulation of rates of growth in population, energy use, raw material consumption, and creation of pollution. The study concluded that disasters would certainly occur within one hundred years unless there were drastic policy changes. The general recommendation was, as the title of the study suggests, to limit growth. Within two years events took place which seemed to confirm this forecast. There were very bad harvests in 1972 and 1974. In 1974 and 1975 there was an energy crisis induced by the quadrupling of petroleum prices by the OPEC nations. Nonetheless, in the years following its publication, The Limits to Growth was severely criticized by scholars and experts in the various fields that it addressed. Its computer runs were challenged and its conclusions were undermined. In fact, the Club of Rome itself backed off somewhat from its earlier conclusions and advocated a degree of growth at a meeting it sponsored in Philadelphia this spring. Other recent studies have also reached different conclusions. For example, it was reported just yesterday that a study done under the leadership of Wassily Leontief for the United Nations calls for increased growth in the world. Nonetheless the main idea of The Limits to Growth has taken hold: that we need to have low growth, slow growth, or even no growth. This idea is widely taught and widely believed here and abroad. We appear to be educating a generation to believe that they live in a "fixed pie" world, that growth is bad, and that technology should be reined and slowed.

We at Hudson Institute disagree. We think solutions are available for most of the problems associated with growth--problems that seem so serious today, including population, energy, raw materials, food and pollution. Furthermore, and perhaps most important, we believe that a consensus can be built which agrees that these problems are soluble and that we should build that consensus in order

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*The main thesis of this presentation is developed more fully in Herman Kahn, William Brown and Leon Martel, The Next 200 Years: A Scenario for America and the World (New York: William Morrow, 1976).

**Executive Vice President of the Hudson Institute and Director of its Research Management Council.

to move on to the real issues of the future, the truly uncertain issues, the issues where there are no obvious solutions. The back of our book contains an appendix which distinguishes these two kinds of issues. The truly uncertain issues include those of war and peace, arms control, and possible long-term damage to our environment in complex and uncertain ways that could be irreversible. Others are the tremendous changes that will become possible through advances in medical technology, and the organization of society in a world where more people have more wealth and more power than ever before. If these issues are not understood and attended to, then the issues we think can be solved may not ever be solved. We think that accepting the limits to growth idea saps morale and encourages withdrawal, when it is precisely high morale and commitment which are needed to overcome the problems of the present and to face the unknown future. Finally, we think that there is a real danger that The Limits to Growth view can be a self-fulfilling prophecy, a result which could deny the creation of a world which would be healthy, abundant, and satisfying for practically everybody. Such a result could perpetuate the existing divisions between haves and have nots, in effect consecrating poverty.

So we offer a different perspective of the future. It is not a prediction, but simply what we call a scenario--a path that, we argue, not only is possible but is much more likely than the forecasts of the doom-sayers; we do not claim, however, that this scenario is certain to occur. What this scenario does is to look at mankind in a long-term perspective of four or five hundred years. The perspective begins about two hundred years ago. We settled on the date 1776, but there is no precise way of pinning down a particular year. What we had in mind was the beginning of the Industrial Revolution; 1776 was not only the year of the American Declaration of Independence, it was also the date of the publication of Adam Smith's Wealth of Nations, the first definitive statement of the kind of free enterprise system under which we operate. In this perspective the ascent of mankind can be seen as a long, flattened S-shaped curve beginning back in the middle of the 18th century. It begins its climb then, and rises through the 19th, 20th, 21st, and 22nd centuries and finally flattens out two hundred or two hundred-fifty years from now; hence its shape depicts three distinct periods. In the period before 1776, human history was characterized by rather slow growth, with high birth rates and high death rates, and a relatively stable population. Two hundred years ago there were perhaps about three quarters of a billion people on earth. Gross world product was around one hundred fifty billion dollars (in 1975 dollars). This meant a per capita income of about two hundred dollars. Then, beginning in the 1750's, the curve begins to move up. There is a take-off in growth, in energy needs, in resource utilization. And this is then followed, in this century, by a gradual slowing in the rate of growth in population and the rate of economic growth. Today we would estimate four billion plus people on earth, about a six trillion dollars gross world product, and a one thousand five hundred dollar per capita income. Finally, at the end of that long flattened S-shaped curve we come to the postindustrial era, after 2176, leading to the 23rd century. Although industry continues, it is no longer the main central activity, just as agriculture and the extractive industries are no longer the main central activity in developed societies of today.

The transition then is largely completed during this historic four hundred or five hundred year period. Population and income slow to steady rates of growth, rates of growth not unlike those in the preindustrial era. Now the world will be at a much higher plateau, a plateau of fifteen billion people, three hundred

trillion dollars gross world products, and a per capita income of twenty thousand dollars (in 1975 dollars). Not only is this overall a great period in human history, but it would appear that we are now quite close to the inflection point in that curve, the point that is both the moment of highest rate of growth and the beginning of decline in that growth. The evidence is rather strong that we have reached this point for population, and that perhaps (although we cannot say so quite so firmly) we will soon be at this point for economic growth as well. The developed nations, for the most part, have passed through that inflection point, and the rest will soon be doing so. The less developed nations are still on the way up. Viewed in this perspective, many problems which today seem so urgent are really only transitory. They are temporary problems of a period between penury and prosperity. We summed it up in the first sentence of our book in the following words: "The scenario presented, elaborated, and tested in this book can be summarized with the general statement that 200 years ago almost everywhere human beings were comparatively few, poor and at the mercy of the forces of nature, and 200 years from now, we expect, almost everywhere they will be numerous, rich and in control of the forces of nature."

In order to show that this scenario is possible and likely, several important questions need to be answered. Will population growth slow? Will economic growth continue, particularly for the less developed nations, and then slow? Will there be sufficient energy? Will there be adequate raw materials? Will there be enough food? Will there be the means to limit and control pollution? The response to these questions is the heart of our study. I cannot do full justice to all of them here, but what I would like to do is to sketch out our answers to the first two as a background to my remarks on the implications of our scenario for future patterns of employment.

First let me turn to population. The familiar picture is exponential growth, with constant doublings. In fact, The Limits of Growth went beyond exponential growth and referred to population growth as being super-expotential. As is well known, when there are constant doublings in a geometric progression the total increases very, very rapidly. This obviously cannot continue very far into the future. Someone once calculated that after not too many doublings, the population on earth would form a solid mass around the globe expanding away from it at the speed of light. We certainly will not get that far; in fact, we will not even come close. The rate of growth of population will decline, and is probably declining now. There are a great many groups around the world that do various kinds of population projections. We have found that the work of the United Nations Population Bureau is particularly reliable in this field. It is carefully done and has been accorded considerable credibility. Recently the United Nations published its projections of future population in three variants, a high, a medium, and a low. The United Nation's medium variant placed the peak rate of population growth in 1975. In other words, such an estimate would imply that the inflection point in rate of population growth was passed last year. The high variant places peak growth in 1980 and, if the low variant is correct, the high point occurred back in 1960.

The turnover is not happening because of famine, disease, or the pressure of growing numbers on limited resources. It is caused instead by economic and social development, usually without benefit of a family planning program. Although family planning programs can be and are very important in considerably reducing misery, and in slowing the rate of growth from say, three per cent down

to two per cent, the main cause of slowing rates of population growth is economic and social development. Smaller families do accompany development, or to put it very simply, the role of children changes. Instead of being producers' goods, needed for their contribution to family income and as insurance for old age, they in effect become consumers' goods, requiring greater and greater time and resources for their upbringing and education. I think many of us who are parents know that. And this appears to be true without exception for every developed nation. The typical pattern in the early stages of development is for mortality rates and death rates to decline, causing population to rise rapidly. After certain levels of development are reached (which vary with different societies), birth rates begin to decline. The example of the United States is particularly dramatic. In 1800 the average woman had seven children during her child-bearing years. In 1970, the number was 1.8. If someone had started a population control program back in 1800, being alarmed at that figure of seven, his successors in 1970 could have congratulated themselves on a job very well done. In fact, this did not happen. There was no population control program, and only recently have we begun to think seriously about such a program. It was social and economic development that brought the U.S. fertility rate down.

The pattern today is the continuation and acceleration of this trend. In the developed countries the crude birth rate was low in 1950, averaging twenty-three; it dropped still further, twenty-five per cent more, to sixteen or seventeen in 1975. This was not unexpected; most experts argue that reduced natality is associated with economic development. However, in the developing countries, where the rate was high (forty-two in 1950), it has also fallen, though not so much, to thirty-six in 1975. In the eight most populour nations of the world, comprising two billion people, or half the world's population, it has dropped even lower, to 33.7. In addition, the tempo of this demographic transition is speeding up. Western Europe and North America required one hundred fifty years to pass through the demographic transition from high birth and high death rates to lower death and continued high birth, and finally to low birth and low death rates. Following different policies, the Soviet Union achieved a similar transition in forty years; and in Japan the process took twenty-five years. We anticipate that other nations will accomplish the transition in still shorter periods of time.

Thus, we can put considerable confidence in the projection in our scenario that world population will be about fifteen billion in 2176, though we still estimate that it could be as high as thirty billion or as low as seven and one-half billion. However, even if it were thirty billion, we believe we could still write a plausible scenario for a viable world with that many people.

Our second question concerns economic growth. There are really two sub-questions involved here. One is how can the less developed countries achieve sufficient economic growth to enable them to develop? this looks very difficult because many of them now are bogged down in the depths of slow development. The second sub-question is: once nations are developed, why will their rate of economic growth slow? Why will it not just continue, perhaps exponentially? Let us look at the first sub-question: How can the less developed grow? Today, as you know, a great economic gap divides the developed nations from the developing nations, and, in many cases, this gap is growing. This has occasioned, and rightly so, a great deal of concern. During the past several years, many international meetings, many debates, many studies, and many policy proposals have been devoted to this problem. The new international economic order

that we hear so much about today is simply a recognition of this gap and the fact that it is growing. The solutions that have been offered usually involve some redistribution of the world's resources to aid those who are on the bottom side of the gap. Sometimes the suggestions have been for massive redistribution, and sometimes, as in the case of Leontief's U.N. study, much smaller redistribution.

We share this concern. We believe that the worst crime is really poverty. But we do not agree with most of the solutions that have been offered. In the first place, they cannot be carried out, and, even if they were, they would not solve the problem. In fact, there is a good chance that they could make matters worse. Instead, we offer a rather revolutionary idea, and we are happy that reviews of our book by people of all opinions recognize that we do have a novel approach to this problem, even though it strikes some as pure heresy.

Our idea is this: the gap itself will stimulate the growth of the poor nations. We expect this to occur, not in the traditional ways of economic growth--savings, investment, and capital accumulation--but instead, in new ways. Some of these are discussed at some length in our book. They include first, the export of labor from developing countries, where it is often in surplus, to developed countries where it is needed. This provides the opportunity for money made by those laborers to be sent back to their own country. In addition, when they return home, they will do so with enhanced skills. Second, there is the movement of work to labor, the building of factories and enterprises in countries where labor is relatively abundant. Third, we believe that the exploitation and development of resources--which in many nations are abundant, though unexplored and untapped--is a great force for growth. Fourth, tourism is a growth industry for developing nations, one which has continued to grow rapidly even during the recent world-wide recession. For many countries it provides a great deal of foreign exchange and income. Fifth, there is technology transfer, now much easier and much cheaper than in the past. Consider, for example, the small, hand-held computer which can be easily transferred, easily explained, and easily operated by persons with little formal education. Finally, there is simply the availability of useful examples, institutions and individuals that can aid and accelerate development based upon accumulated knowledge and experience.

The gap may indeed continue to widen between the developed and the less developed; but this is not of key importance to the peasant, the worker, the teacher in a poor country. His concern is not how much faster a developed nation has grown in the past year than his nation. His concern is how much better he is doing this year compared to what he was doing last year; and if he is twice as well off this year as he was last year, that is what counts. Thus, we reject the notion that for the poor to get richer, the rich must get poorer. We argue instead that, because of the gap, the poor will get richer because the rich get richer.

The other half of the question is: Why will this growth slow? The main point here is that it will not slow because of limits of supply, not because we are running out of things, but instead because of limiting demand. For this we offer several reasons: First, the leveling off of population will bring about an absolute limit to growth. In other words, there is somewhere an upper boundary to growth. But this is not too convincing, for considerable growth would still be possible before that boundary is reached. But if we look at what happens

to productivity in a developing economy, we find that, as an economy matures, a shift occurs in the relative productivity of its different sectors. In the preindustrial era the major economic activities were what might be called primary or extractive activities. These included farming, fishing, and mining. Ninety per cent of employment in the late 18th century in the United States was in these primary activities. Secondary activities, such as contract construction and manufacturing, took a very small part of our employment and were a very small part of our total gross national product.

Service activities encompass two categories: the tertiary and quaternary. The terms primary, secondary, and tertiary were first used by Colin Clark, the well-known Australian economist, while quaternary was introduced by the geographer, Jean Gottman. The tertiary category consists of services to the primary and secondary sectors. This includes education, banking, accounting, merchandising, retailing, and so forth. The quaternary category includes services for their own sake, activities done for personal satisfaction, such as hobbies, arts, entertainments, festivals and rituals.

In the preindustrial era, primary activities were dominant; the secondary were smaller, and there were very few service activities, tertiary and quaternary. But with industrialization, the primary sector's share of the economy grows relatively much smaller, both in its share of gross national product and in its share of employment. For the United States in 1970, agriculture accounted for only four per cent of our employment. The secondary sector is much larger during industrialization, and the services sectors are growing, particularly the tertiary--the services to the primary and secondary.

In the postindustrial era, what happens--and you can see the evidence of this in the most developed nations, including the Unites States--is that the primary sector continues to be very small and the secondary grows relatively smaller; the tertiary grows still larger, and the quaternary begins to increase.

Looking at data from the Bureau of Labor Statistics, you can see very strong trends in the 20th century that illustrate these shifts as our super-industrial economy matures. Yet you cannot make this case with absolute firmness; you cannot say it is irrevocable. What this shift means for economic growth (causing its rate to decline) is seen by examining the inputs of capital and labor to these different sectors and the shares of output that result. In the primary sector, inputs of capital and labor produce returns in productivity proportional to the inputs. In the secondary sector, inputs of capital and labor produce returns that are proportionally much greater than the inputs. Thus, when the secondary sector dominates the economy grows rapidly. So you receive proportionately more out of those inputs.

In the service sector, the picture is more mixed. In some tertiary activities there is proportionately greater output for the same inputs of capital and labor; in others there is less. However, in the quaternary sector productivity is almost always reduced. In other words, you get proportionately less than you put in. What this means for economic growth is that it is the secondary sector, primarily and principally, that drives growth. So, as tertiary and quaternary activities grow, as service sectors predominate in the economy, the result is a slowing of economic growth.

Second, in the super- and postindustrial society--and we will characterize the United States as being superindustrial today and moving into the postindustrial era--there is also a decrease in the marginal utility of wealth. There is some feeling developing--though this is difficult to document--that as the initial reasons for the accumulation of wealth (i.e., safety and security) are provided for by insurance, social security, medicare, and so forth, concern shifts from the quantitative to the qualitative. In other words, there appears to be the absolute number of luxury items one acquires. Studies show that after a certain quantity is acquired, interest shifts to quality. This coincides with a general lessening of interest in material goods. This does not say that the flower children of the 1960s have been able to entirely implement their beliefs, but they have probably moved their generation some distance away from purely material considerations.

Finally, our third reason for a slowing growth rate in mature developed nations, closely related to the one just mentioned, is the increasing phenomenon of localism. Localism means that more and more communities are seeking to inhibit growth, or inhibit industrial development, in their area. Almost everybody benefits by having highways, factories, airports, and power plants located somewhere in their general area. But almost everyone loses by having them in their backyard. So communities like Aspen, Colorado, Santa Barbara, California, and others have tried to limit their development. In effect, the last person coming into Aspen is saying, "I want to be the last person to move here; let's keep Aspen from developing any further." Today we see more and more of this in the United States and in other developed nations. Oddly enough, community control, which was invented for the poor, did little for them. However, the middle class has been able to use this concept very sucessfully--we believe this will continue and will slow economic growth in the super- and postindustrial era. Thus in the passage from industrial to super- to postindustrial, it appears that there will be an economic transition of rising then slowing rates of growth analogous to the demographic transition.

What then are the implications for employment in the super- and postindustrial era in which we are now entering? On this question one can be only very sketchy; however, based on Hudson Institute's scenario, certain employment shifts can be expected. The most important and most obvious will be the increased shift to the services sector, in both tertiary and quaternary activities. The primary sector will continue to have a low labor input; while the secondary sector will over time require less and less labor. There will be many reasons for this, but the most important will probably be automation. The tertiary service sector will, for a time, continue to have greater employment, but will also become more capital intensive. Finally, its employment will level off and possibly even decline, although not so much as nor so rapidly as in the case of the primary and secondary sectors. Employers and employment in the quaternary sector will continually increase, and in the postindustrial era this sector is likely to be the one of greatest employment. The shift to quaternary will be aided and supported by the steady increase in per capita disposable income that our scenario projects. This is already visible in the increase in the services sector in most developed nations, a trend that is particularly seen in the greater per cent of income being devoted to such activities as entertainment, tourism, hobbies, and the like. We estimate that this trend will continue and will grow.

A second important implication is that there will be a shorter work week and increased leisure. The four-day work week is virtually here in some industries. For example, the recent labor agreement with Ford Motor Company resulted

in a contract calling for seven additional days off; and those were not named holidays, just days off with full pay. Eventually this may be formalizes as a scheduled four-day work week; perhaps even a three-day work week will follow this step. At any rate, we can certainly anticipate that there will be more and more variations in the scheduling of employment and in hours of employment. And we can expect also that this greater leisure will provide still further stimulus to quaternary activities.

The tendencies which have been mentioned that contribute to slower growth, particularly localism, risk aversion, concern for health, comfort, safety and the environment--all of which are evident today--also have important implications for employment. We can anticipate more laws and regulations, locally and nationally. As a result we can expect an increase in employment and occupations associated with interpreting, implementing, and litigating laws and regulations. This will mean an increasing need for lawyers and technicians, as well as employment associated with the manufacture of scientific instruments, such as measuring equipment of various kinds. Also, we can anticipate an increase--though we might not enjoy this prospect--in public sector employment, particularly in national, state and local government. Coinciding with this will be an increased need for specialists in the occupations associated with health, safety, and protection of the environment. People will want such services and, with greater affluence, they will be able to pay for them. We anticipate that these shifts in employment patterns will occur in the most developed nations, that in the most advanced they will occur with increasing speed, and that they will also begin in the less developed countries as they become more fully developed. There is therefore, a huge market for training in these occupational areas; part of its rapid growth will be due to the fact that others have gone first who then can train more people in these skills. In the United States and Western Europe this is already well underway.

To summarize, the scenario that has been developed by Hudson Institute--and I repeat, it is a scenario, not a prediction--stands in sharp contrast to the "doom and gloom" views that have become so fashionable of late. It argues that the resources of the world are not a fixed pie, but a pie that can be expanded. It argues that we will not be inundated by too many people and by too much pollution. It argues that growth is not only possible but necessary, because growth will give us the knowledge and the surplus to solve the problems of today as well as the possibility of surviving the unforeseen and the unknown. This scenario depicts the world today in the midst of a great transition from the preindustrial age through the era of industrialization to the postindustrial era, a transition from penury to prosperity. This great transition of approximately four hundred years--in which we now stand very close to the inflection point--rests on assumptions of a slowing rate of population growth and continuing economic growth for the less developed nations, followed by a slowing of growth as those economics mature.

The implications of this scenario for patterns of employment in the future are shorter working hours, greater leisure and a distinct shift in emphasis to service sector activities, first the tertiary, then increasingly the quatenary. But perhaps the most important implication is that great changes are already under way and very little thought has been given to what their affect will be, on patterns of employment as well as on related activities. Our primary concern, understandably, is with the problems of the present. But we also have an obligation to the future. Alvin Toffler has reminded us that the future can shock. To this we can add--rephrasing the philosopher Santayana--those who neglect the future risk losing it.

AND NOW--A WORD FROM THE PRIVATE SECTOR

John J. O'Connell*

Ladies and gentlemen, as a representative of the sector that is perhaps best described as "business and industry," I want to tell you how impressed I am by this symposium. It is quite a program, and I think everyone connected with it ought to be complimented.

I regret that I've only been able to attend a few of the sessions. As for others, the titles alone suggest subjects of more than passing interest to me.

For example, there is a provocative title for the opening general session, "A New Look at the Economic Environment," and certainly the presentation, "The Costs of Economic Illiteracy," by Andrew Weintraub. Professor Weintraub is well known to us in the Lehigh Valley. Through the years he has struck many powerful blows for economic literacy although, as he suggested yesterday, the returns are not all in. In any case, a bit later on I'll add a few of my own thoughts on the economic environment here in Pennsylvania. Let me now comment on the concept of public economic understanding.

The state of public economic understanding in this state, and indeed in most states, is pretty bad. It is perhaps even appalling. The "wealth" that is shared in "common" by all the people in the Commonwealth is largely a product of our private enterprise economic system, and every American should understand it at least as well as he or she understands the rudiments of our political system.

Some time ago, Professor Irving Kristol, in one of his frequent articles in The Wall Street Journal, urged that industry present its views vigorously and openly. At the same time he warned that the business community could expect to be greeted with considerable flak.

Therefore, even though I'm dismayed by it, I'm not surprised by the storm of protest that's arisen over promotion and distribution of the economic primer entitled, "The American Economic System...and your part in it" that was recently published by The Advertising Council. You've probably heard about that brouhaha.

We think it's a good, readable, well-balanced educational tool. At Bethlehem Steel we've offered copies to our employees through our employee house organ, the Bethlehem Review. We think it's a sad day when some people brand as "propaganda" a publication that fairly describes the economic system of our Founding Fathers, the economic system that has delivered economic freedom an unrivaled prosperity.

I urge all of you here who are in the educational field to see to it that as many students as possible are instructed in at least the basic fundamentals of economics, for it is badly needed.

Fortunately, this need is getting more attention all the time. We're regularly hearing of new programs at schools and colleges, and new emphasis on this area.

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Along this line, you might have read about one of the papers delivered at the convention of the Allied Social Sciences Association in Atlantic City last month. Dr. Kourilsky of UCLA reported on a program teaching basic economic concepts to kindergarten students. Let me read you an excerpt from the story in The New York Times: Dr. Kourilsky said, "...if society hoped to solve such crises as gas shortages, meat shortages and inflation, a citizenry educated in economics was necessary. And kindergarten, she believes, is none too early to begin teaching such fundamental concepts as scarcity, supply and demand, and production."

Incidentally, for several years now we've had a systematic program at Bethlehem Steel--we call it the Employee Economic Awareness Program--which we think is working quite well. We try to give all 106,000 of us some good, solid information on such timely economic subjects as inflation, energy problems, environmental economics, and the problem of capital formation.

We firmly believe that citizens who have at least a basic understanding of our nation's economy and its institutions are likely to be better citizens, and more productive citizens.

The third item on your agenda yesterday was Mr. Martel's discussion of the Hudson Institute's widely publicized view of the future. My company participates in various Hudson Institute programs and we're well aware of the work they've been doing.

I agree with their essentially up-beat scenario, and so do the people in our Planning Department. The future challenges are great, there are stormy areas ahead, but our prospects as a society are really quite hopeful. As Mr. Martel said, optimism is realistic. We businessmen are supposed to be pragmatic above all, and our pragmatism in this case leads us to optimism.

A number of other sessions focused on prospects for the less-than-baccalaureate labor market. That session, chaired by Board of Education member Madge Benovitz, produced a very stimulating discussion.

Here's what I learned: (1) Pennsylvania is not doing a very good job in the technical school area; there are too few of them; (2) Pennsylvania is, however, on the right track with regard to technical schools; more schools are planned down the road; (3) the Pittsburgh School District has done an outstanding job of technical education; (4) the Pennsylvania school system in general is training students--all students--to be docile and unquestioning because that is what business and society in general, wants; and (5) Pennsylvania schools are doing a creditable job of equipping students with vocational skills or preparing them for college; but business and education have a shared responsibility to equip young people to take their places in society--which means employment at one level or another.

Incidentally, I was greatly interested in a question that arose during that session. Someone asked, in our preoccupation with turning out people with the skills to be, say, carpenters and bricklayers, how about poets? I think the answer provided by Board of Education member Jane Freedman was very apt. She said, "True, we need poets, but the people who want to be poets should be given the skills to be poets."

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I have subsequently studied, and take strong exceptions to, a paper that was presented at that session but not read. Here are a few excerpts from it:

"The elite leaders of our society have a good thing going for them in universal free public education: an integrative system which legitimates the lack of democracy and equality in the economy by preparing children for differentiated roles of varying degrees of powerlessness in adult life. While the most successful efforts to change the economic system will undoubtedly be direct assaults on that system itself, there is still a role within education for those who believe in democracy and equality." I added emphasis to the words, "direct assaults." I leave it to you to decide the meaning of that reference and, indeed, the entire statement.

The next excerpt that caught my eye is as follows: "Not only are the schools organized hierarchically to reproduce the work place, but they also alienate both teachers and students, just as industrial work alienates the mass of working men and women."

The authority for that astounding judgment is Studs Terkel, a Chicago newspaperman, who is not noted for objectivity nor for scholarly research. I suggest that the "authority" of Mr. Terkel is no authority whatsoever, and that the author's assertion is not worthy of serious consideration unless validated by credible authorities.

My final quotation from the paper is as follows: "All this is necessary because the schools serve society, and because the needs of society are--in most cases--defined as the needs of the corporate ruling class. These needs are to assure first, that each new generation is properly socialized to accept the existing system; second, that each new generation is trained to fill the available adult roles in adequate numbers to assure an oversupply of labor (which keeps wages low); and third, through these first two needs, to assure the elite of continued profits and control."

The radical view of American society as presented in the foregoing statement defies a brief response. Suffice to say that the author's view of society is badly distorted. For present purposes, I'll confine my response to his incredible allusion to "low" wages. Anyone who is aware of recent labor contract settlements (e.g.--Ford Motor Company, Teamsters, and Rubber Workers), or current levels of wages and employment benefits in such industries as steel, coal mining, chemicals, and oil, could hardly take seriously any suggestion that most American workers are short-changed in terms of wages and benefits.

Getting back to prospects for people without college degrees, I would like to quote from remarks one of our executive vice presidents, C. W. Ritterhoff, made back in April at the Professional Leadership Conference of the Maryland State Department of Education.

He said, "we've gone entirely too far as a nation in trying to send just about everybody to college." He suggested that we take another look at the so-called college "mystique." As he put it: "Today America needs more skilled workers who can create worthwhile goods and services, and it doesn't take a college degree to do it."

Since I'm responsible for personnel matters at Bethlehem Steel, I can assure you that there are many opportunities in the steel industry for people with trades and skills. They command high pay by just about any standards, and I'm talking about challenging jobs, jobs people can and do take pride in.

Incidentally, our College Relations people tell me that the underlying theme and concern of college Compliance and Placement Officers is not unemployment, but "underemployment." In effect there are too many college graduates with degrees that don't match industry's requirements. Result: graduates accept positions that do not meet their expectations or education level. You're going to hear a lot more about the "underemployment" problem in the future.

Bill Ritterhoff didn't mean to "knock" college, and neither do I. But in extolling the merits of a college education, as we've been doing for a long time, let's never denigrate the crafts and trades.

And something's out of whack, because my company has had problems in locating qualified craft workers. Even during the depths of the recession we had to advertise in many areas, even in areas beset by high unemployment rates, and we still couldn't fill some of our needs. That's tragic. In fact, it's shameful.

We're continuing to push hard to achieve even better minority representation at all our operations, and we're actively recruiting women for jobs that traditionally have been filled by men. Within industry, I think we're making very good progress in ridding our minds of the old stereotypes. The problem is that too many people out there haven't caught up with us. They have the same old stereotypes about themselves.

Again, I have some evidence of what I'm talking about. It happens that Shana Alexander, the CBS/TV personality, author, and journalist, spoke at Cedar Crest College in Allentown last month. She made the same point I'm making. She said that women don't demand enough for themselves and of themselves. She said, according to the newspaper report, that "many women entering the marketplace tend to underrate their own value."

We've seen it time and again in the industrial world; racism and sexism today are being perpetuated more by the victims than by any supposed "oppressors." That's where you in education come in. You have to not only help educate and train people for the great career opportunities that are open to them, but you have to convince them that they are capable of seizing those opportunities; that they're worthy of them.

The outstanding example at my company and in my business is in the area of engineering. We need more female and minority engineers. We need them badly.

In industry we're trying very hard to provide totally fair and equal opportunities for employment and career progress. But we can't move as far and as fast as we want to go if young people don't get the kind of education and training that matches our needs; if they don't apply for the career jobs we're offering, and that we advertise so widely; and finally, if they don't stick with us.

Incidentally, Steve Franchak sent me a newspaper clipping that he rightly thought I might want to comment on. The headline is, "Business Backs Work-Oriented Schools."

That's certainly true of my company, we strongly support vocational emphasis at college. However, you could change that headline around and it would be equally valid. That is, you could make it read, "Business Backs School-Oriented Work."

More and more, we are encouraging and sponsoring continuing education and training for our employees. Under our Educational Assistance Program at Bethlehem Steel, thousands of our employees have taken courses at company expense or have gone on to get undergraduate or graduate degrees. Hundreds are enrolled in such programs right now. More often than not these courses of study are broadening.

The same is true of our many management development programs. We have a lot of them, a whole variety of in-house programs and courses, complemented by the attendance of some of our highest-level people at university-sponsored executive development programs.

Such programs widen perspectives and deepen understanding. We want our people to be more aware of and responsive to the pressures and demands that society is making on business.

What it all amounts to is this: we prefer that a person come to us as an accountant, or a metallurgical engineer, or a chemist. Let him or her have those essential vocational skills, be intellectually curious, and have a fundamental capacity for leadership. We will then aid the development of such individuals both along professional lines and toward broadened perspectives.

Now I'd like to wind up my remarks with some observations on the climate and prospects for business, and job creation, right here in Pennsylvania.

Coincidentally, our president, Fred West, touched on this subject late last month when he addressed the Annual Legislative Conference of the Maryland State Chamber of Commerce, down the Turnpike at Bedford Springs.

The part of his speech that attracted the most attention was his discussion of a report by the Fantus Company, a subsidiary of Dun and Bradstreet. Fantus is probably the country's best-known firm of consultants on plant locations.

Last year Fantus did a study for the Illinois Manufacturers Association, in which they evaluated the forty-eight contiguous states according to thirty-one criteria. The net result, according to Fantus, is a rough approximation of each state's "climate for business." It came out with Maryland in 36th place, Pennsylvania is 42nd place, and New York is 48th place, dead last.

As a check against the practical realities of their estimate of the "climate for business," Fantus then compared their rankings with manufacturing job gains or losses per state. More specifically, they used the Labor Department's Manpower Report to the President, covering 1967 through 1974.

There was a high degree of correlation. Of the top twenty-seven states in the Fantus ratings, all but one gained jobs during this period. Of the lower-ranking twenty-one states, all but five lost jobs during the same period. There seems to be a clear and definite relationship between the quality of a state's climate for business and whether the state has been gaining or losing jobs in the manufacturing sector.

Please don't misunderstand me. I don't put Pennsylvania in 42nd place. Fantus does. And I'm taking the Labor Department's word for it that the state lost 88,000 manufacturing jobs over a seven- or eight-year period. I didn't come here to "knock" my own favorite state. I will say, however, that those ratings and calculations don't surprise me a bit; they seem to coincide with the facts.

Certainly the steel industry has been something less than "bullish on Pennsylvania" for some time. My industry has done a lot of improving here in the Keystone State, but it hasn't expanded. I don't think it's purely a coincidence that the state where the industry has been expanding a lot, and this is certainly true of Bethlehem Steel, is Indiana. And Indiana received a very high rating from Fantus---ninth place.

I know that all of you are dedicated to the cause of employment right here in Pennsylvania. This takes the right kind of education, the right kind of training, the right kind of vocational and career guidance--all the right programs and policies. All those things are important.

But it's a truism that you can't educate, train, motivate, and guide people into jobs that don't exist. And our state surely needs jobs, and I mean jobs in the private sector, which provides five out of every six jobs in our country, and generates the tax revenues that support the activities of the public sector.

We need a better climate for business here in Pennsylvania. It's far beyond the purview of these remarks to even begin to suggest how that can be accomplished, but it ought to be done. It has to be done. I'm not merely talking about attracting new employers into the state. The tactics used to lure Volkswagen to New Stanton will probably be debated for a long time to come. Maybe it was a good move, but I can assure you that a lot of employers here in Pennsylvania are very, very skeptical.

We're amazed at the tremendous effort and investment made to attract 5,000 direct jobs, when resident industries have lost many times that number of jobs in recent years. It's a drop in the bucket compared to the jobs our established industries could generate if they were encouraged to grow.

The mystery deepens when you consider the statements of various officials as to multiplier effects. The Governor has been quoted as saying that the 5,000 jobs at New Stanton will generate 10,000 to 15,000 additional jobs, and that sounds perfectly reasonable. But other state officials have been quoted as predicting the creation of anywhere from 23,000 to 35,000 support jobs. Those multipliers get up into the range of four to seven. And my point is that people never seem to use such high multipliers when evaluating the economic benefits delivered by our resident industries.

My own company has about 48,000 employees here in Pennsylvania. If you apply those same multipliers, we generate indirect jobs in the range of 192,000 and all the way up to 336,000 jobs.

People don't talk like that when they're raising taxes on business, requiring pre-payment of corporate income taxes, imposing new regulations, or generally making life difficult for business.

I couldn't put it any better than an editorial in the Bethlehem Globe-Times ten days ago. The last sentence said this: "What good is a policy that subsidizes new plants while oppressing established industry by forcing it to compete in a business climate that's one of the worst in the nation?"

That's a very good question. It's worth serious consideration by anyone and everyone who's truly concerned about jobs for the people in Pennsylvania.

In my opinion, there has to be an improvement in the overall climate for business here in Pennsylvania, and I mean for businesses that are already in the state, and not just prospects we're trying to lure into the state.

Big numbers of jobs could be preserved by holding companies here in the state, and arresting the erosion of jobs. And, by encouraging resident business to expand and grow here in Pennsylvania.

We have a tremendous industrial base in this state. If we strengthen it, and build on it, we'll have the best chance of fully meeting the employment needs of our growing work force. And that aim, ladies and gentlemen, is worthy of the very highest priority.

COMPREHENSIVE EMPLOYMENT TRAINING ACT, EXPECTATIONS AND REALITIES

William Mirengoff*

This paper focuses on three concerns:

- First, a description, very briefly, of the objectives and methodology of our Comprehensive Employment Training Act evaluation study;
- Second, a summary of our findings to date in the context of the agenda topic, "Have Congressional Expectations been met?"
- Then, an identification of several of what, I believe, are the major issues facing the Congress, the U.S. Department of Labor (DOL) and the prime sponsor (PS).

Description of National Academy of Sciences (NAS) Study

The central question we are attempting to address is what happens when control over a multi-billion dollar manpower program, consisting of 17 different national categories and 10,000 individual projects, is shifted from federal to state and local authorities. What happens to places, programs, people and politics?

The study is being conducted under the auspices of the NAS and funded by the Ford Foundation. I find this to be a very felicitous arrangement. As a privately financed study, it is free of the constraints which sometimes accompany government-sponsored evaluations; and, as a NAS activity, it is clothed in a mantle of respectability and professionalism.

Our methodology is fairly rigorous. We selected a random sample of 28 areas stratified by the type of PS, as well as by extent of unemployment. This produced six cities, nine counties, nine consortia and four Balance Of States (BOSs). In each of our sample areas we chose local academicians to follow the program. The data obtained by them through extensive interviewing provided most of the information for our study. The survey is being conducted in two phases. The first, already completed, was focused on Title I and the first year of Comprehensive Employment and Training Act (CETA). We have published two volumes covering this period. For those of you who haven't read them, they can be obtained from our office. The second stage now under way updates the first-year developments and is largely concerned with Titles II and VI.

Have Congressional Expectations Been Met?

One perceptive student of the political scene observed, "Legislation is the art of compromise." Another added, "To insure the passage of legislation, keep its purposes vague."

CETA does admirably on both counts. It has more than its share of ambiguities and even contraditions. As a bipartisan act, it incorporates two philosophic strains:

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*Project Director, National Academy of Sciences

a) that of the Administration with its emphasis on revenue sharing, the New Federalism, minimum federal presence and the broadening of the manpower programs constituencies, and

b) the views of the Congressional majority with its concern with adequate federal directions and oversight and in providing services to those most in need. In addition to papering over these ideological differences, it was also necessary to accommodate conflicts among vested interest groups.

The point I am trying to make is that expectations are frequently unclear and sometimes unstated. I will point some of these out throughout the paper.

Nevertheless, there is a substantial body of the legislation over which there is general concurrence.

The Congressional decision to decentralize and decategorize manpower programs was made with the expectation that there would be a better distribution of manpower resources and that these resources would be used more effectively. More specifically, it was believed that:

1. Programs designed at the local level by persons familiar with local scene would be more responsive to the needs of the community.

2. Decategorization would provide to the PS the flexibility necessary to introduce innovations and change the federally imposed mix of the pre-CETA programs.

3. Programs would be operated more efficiently and at lower costs since:

   a) Control and administration of local programs would be centralized. (Note that decentralization of national programs seems to imply centralization at the local level.)

   b) Duplication would be eliminated and integrated comprehensive systems would emerge.

   c) The delivery of manpower services would be improved because the PS could choose the most able deliverers.

Moreover, the framers of CETA believed that manpower programs would be monitored more effectively if the locus of control was closer to the operation of the programs and the local elected official was accountable for performance to both the DOL and to his own electorate.

Review of Expectations in Specific Substantive Areas

Now lets review 10 of the specific expectations separately--in the light of our study findings--for clues as to whether the expectations have materialized.

1. Decentralization

The central expectation of CETA is that the national manpower programs would be decentralized. Have they been? If we were to measure the degree of decentralization of CETA in terms of how the dollars were allocated, we would find that 84 per cent

of the 1976 CETA appropriations went for programs that were operated under local control. This would include the programs in Titles I, II, and VI. Titles III and IV remain national programs.

Substantively, the PSs have assumed control over the manpower programs in their jurisdictions and have established the institutions to manage those programs. The overriding conclusion to be drawn is that manpower programs have become an integral part of local governments. CETA has, in fact, established a new federal-state-local manpower network.

Now, having rather flatly asserted that CETA has been decentralized, let me introduce some qualifications. Although about 84 per cent of CETA resources are in decentralized programs, the degree of local autonomy is circumscribed. Congress has built several interposition points into the statute such as federal review and approval of all PS plans. And the DOL has extended the federal reach through regulations, interpretations, guidelines, reporting and assessment. Thus, although management role of the PS and his accountability is reasonably clear, his freedom to develop basic policy is less clear. This role is shared with the "feds" and it is not entirely clear as to who is the junior and who is the senior partner.

We have found that the degree of federal presence varies from region to region; and frequently within a region depending upon the personalities of the individual federal representatives.

Some PSs complain that the intervention of the feds in local affairs is excessive; to which the feds reply that they are simply discharging their mandated oversight responsibility.

The perception of federal presence, like beauty, lies in the eyes of the beholder.

There is, in the legislative history of CETA, support for both positions. The House Report directs the Secretary of Labor (SOL) to "exercise his own independent judgement." It asserts that he "cannot absolve himself of the responsibility that the bill places upon him." It goes on to say, "...the Secretary is expected to adopt administrative procedures for looking behind the certification of compliance, including routine spot checking through the Regional Office of the DOL.

Another part of the report underscores the role of the PS: "The Committee does not expect the SOL to second guess the good faith judgement of the PS."

This apparent disparity reflects the differences in the emphasis of the framers of the act. When they couldn't agree upon a single position, they said "yes" to different positions.

Our report suggests a significant and growing federal presence. The most recent expressions of this have been the federal push for greater participation of Employment Service (ES) in CETA and for uniform performance standards based upon federal guidelines. PSs generally report more visits by federal representatives, more attendance at council meetings and more requests for reports. The stand one takes as to whether this development is good or bad depends upon where one sits.

2. Decategorization

The second base upon which CETA rests is decategorization, the removal of nationally mandated special programs, each with its own statute, funding, regulations and clientele. Without the flexibility of the PS to put together a local program which addresses local needs, decentralization would have the trappings but not the substance of a block grant program. However, looking at CETA in its entirety, it is apparent that 72 per cent of its dollars are for titles directed to special places (Title II), special programs (Title III), special people (Title IV), and special problems (Title VI).

What about decategorization in Title I? The expectation was that the elimination of categorical restraints would unleash a flood of local innovative ideas about how manpower programs should be designed and stimulate new initiatives. The early findings of our study do not support the premise that local authorities, given the opportunity, would substantially refashion manpower programs. The CETA programs bear a strong resemblance to its pre-CETA predecessors. Many are familiar with the reasons--impossible time pressures, lack of staff, and a general reluctance to rock the boat. The controlling consideration was that PSs did not start with a clean slate. Most of them inherited a full complement of manpower programs along with their supporting institutions that could not be ignored.

Where changes did occur, it was usually in places which had few previous manpower activities or where there were significant increases in funding which enabled the PS to continue existing programs and use the additional resources for innovations.

An examination of the second year plans did not reveal significant program changes despite the hopes of many PSs that the second year would be different. Again, the reasons were predictable. Once programs were funded, it becomes increasingly difficult to turn the spigot off. Institutions, as I am sure many have discovered, have enormous survival capacities.

Yet, it is important to note that some program changes did occur, not by introducing new kinds of programs but in shifting the amount of resources going to the "standard" programs. For example:

- On the job training expenditures were reduced from 20 per cent of all manpower programs in 1974 to 8 per cent in 1975. There was a small recovery in 1976.

- Work experience programs picked up most of this decrease and accounted for 43 per cent of Title I expenditures in 1975. It slipped to 39 per cent in 1976.

These changes in program emphases reflect, of course, the impact of the recession which dried up job opportunities in the private sector.

The ability of the PSs to quickly shift program gears to react to changes in the labor market was facilitated by the program control and flexibility they enjoyed under CETA. It is doubtful whether such adaptions would have been possible under a centralized, categorical program.

3. Administration

The Congressional decision to decentralize manpower programs was made with the expectations the panoply of local programs would be reduced, brought under a unified local control and integrated into a comprehensive system with attendant gains in efficiency.

The central expectation has been realized. The PS has become the focus of control. Central machinery in each locality has been established to administer the program.

But the expected fall-out in terms of an integrated, comprehensive system and the elimination of duplication is yet to be accomplished, although some progress has been made in consolidating activities.

Four of the 28 areas in our sample have, in the first year, come close to establishing a comprehensive system, although complete integration has not been achieved even in these cases. Most commonly these PSs have consolidated the "entry" (intake, assessment, referral) and the "exit" functions (job development and placement) in central facilities which they operate themselves.

Eleven of the PSs in our sample had mixed systems--that is, consolidation of programs while others operated independently.

In the main, the pre-CETA program pattern continued. Thirteen of the sample PSs continued existing programs with little modification rather than merging them into an overall design. Each program independently conducted its own activities.

Congress, which was dismayed to learn that there were 10,000 individual project operators in the pre-CETA period, will have to brace itself for the shock of discovering that the CETA system has

spawned several times that number. Although there was consolidation at the entry and exit points, there was considerable proliferation of contractors and sub-contractors in the "middle" activities.

Comparative administrative cost data are very difficult to come by. It would appear, however, that the costs of establishing and maintaining administrative units in over 400 PSs (some with several hundred personnel) has not been offset by reductions in federal staff or in the administrative costs of individual project operators, although this trade-off had been expected.

One of the most difficult questions to answer is whether local administration of programs is, as Congress expected it would be, more efficient than central management under federal control.

The results appear inconclusive.

In responding to this question, here is how our field research associates came out:

- 9 thought the programs were being better managed, though not necessarily more efficiently

- 3 said it was worse

- 8 were not sure but were leaning toward the CETA model

Those who thought that local control was superior mentioned the following:

- greater cost consciousness

- more monitoring of programs

- less duplication

- better coordination

- greater sense of accountability

The three who thought differently pointed to the extra layers of administration without visible improvement in the programs.

4. Delivery System

Congress expected that CETA would produce a better delivery system because PSs would be free to choose operators who could deliver the biggest bang for the buck. This question of who was to deliver manpower services--the traditional agencies or others --concerned Congress almost as much as the nature of the programs themselves. And the legislators came down firmly on both sides of the issue.

With a bow in the direction of local autonomy and flexibility, they declared that there are no presumptive deliverers of manpower services; that program operators would have to compete for contracts.

Then turning around to meet the objections of the established deliverers, they stipulated that to the extent deemed appropriate, existing institutions of demonstrated effectiveness should be used. Having thus disposed of the issue, they left it to the federal, state and local administration to sort things out as best they could.

What followed was an intense struggle over "turf." When the dust settled, the picture looked like this:

a) PSs were extending their roles. Increasingly they were getting involved in direct program operations. Three major reasons were cited: (1) to replace operators whose performance was unsatisfactory, (2) to avoid having to choose among competing organizations and (3) bureaucratic "imperialism"--tendencies towards "empire building."

b) Vocational education held its own but tensions between the credentialed educational establishment and PSs have surfaced. Educators are uneasy over the growing influence of non-professionals in educational matters. They frequently perceive the objectives of vocational education differently. PSs generally opt for short-term training leading to specific occupational placement while vocational educators are inclined to stress basic and longer term training in core curricula.

c) The community-based organizations (CBOs), such as the Opportunities Industrialization Centers (OICs), Service, Employment Redevelopment (SER), Urban League (UL), despite their initial forebodings, fared well under CETA in terms of money. Funds contracted to the three major CBOs rose from $46 million in 1974 to $95 in 1976. However, the rate of growth was clearly lower in the second year. In part this increase was the result of the expansion of work experience programs which are usually handled through CBOs. Nevertheless, the CBOs were also uneasy in their new role. Despite increased funding, they lost much of their independence. They "eye" their PSs warily and feel uncertain about their future.

Funds Contracted

	1974	1975	1976
OIC	23	42	55
UL	10	16	21
SER	13	19	19
	46	77	95

d) The largest losers in the CETA game are the Community Action Agencies (CAAs). Half of the CAAs who were deliverers in the pre-CETA period had their roles reduced. Past adversary relations with elected officials had caught up with them and they no longer had a parent organization such as the OEO to turn to for support. Moreover, the militant leadership of the 60's had largely been co-opted.

e) What about the ES? I'm going to discuss this aspect in some detail because I believe the ES-CETA relationship will increasingly become a major issue.

The impact of CETA upon the ES as a deliverer of manpower services varied considerably from region to region and state to state. Eighty per cent of the PSs used ES facilities to some extent. On balance, however, there were significant losses in the first year amounting to 800 positions. To appreciate the consequence of these cutbacks, one must realize the extent to which the ES in the 60's had become "hooked" on funds from national manpower programs. As these programs proliferated in the 60's, the ES became increasingly involved until one out of every 4 ES positions were funded from these sources. And like any other addict, the ES found the withdrawal process to be very painful.

Most of the first year losses were offset in the second year, but only because of the addition to CETA of Title VI (public sector employment) which required the immediate services of an agency able to make eligibility determinations and referrals.

Our survey suggests that the ES fared best in the BOS where they were better integrated in the community and where alternative deliverers were fewer. In a few states, they received significant support from the governor. It did poorest in the large cities where these conditions did not prevail.

Where the ES role was reduced, the explanations varied depending upon whom you asked. Our survey indicated that PSs have 3 basic complaints:

- Limited effectiveness in terms of placements and filling of oon-job-training (OJT) slots

- Inadequate service to the disadvantaged

- Excessive costs

There are several other reasons for the reduced ES role.

(i) Some state and local ES offices showed little interest in participating in CETA. They preferred a more limited labor exchange role to the dilemma of having to serve the disadvantaged while trying to attract employer orders and maximize placements.

(ii) PS imperialism--empire building by new and ambitious CETA staff undoubtedly played a part in elbowing out the older institutions.

(iii) In some instances political considerations were compelling. The PS, as an elected official, is susceptible to the pressures of local institutions with political constituencies.

(iv) Finally there were two objective forces operating to limit the ES role.

- One of the major purposes of CETA is the development of a comprehensive and consolidated manpower delivery system. In moving in this direction, ES tended to consolidate and operate themselves what I call the "front end" and "back end" activities. That is, intake, assessment, and counseling referral at one end and job development and placement at the other. Because these are precisely the functions in which the ES have been most heavily involved, the impact upon them was particularly severe. Our survey suggests that this will be a continuing trend.

- The other external influence was the recession. Faced with the prospect of laying off their regular work force, employers were reluctant to participate in OJT programs. As a consequence, OJT enrollments in 1975 dropped from 20 to 8 per cent of all manpower program participants, and the ES which generally handled these programs, suffered in the process.

The major influence operating to buttress the ES position is its parentage. As the child of the DOL--some would say step child--it would seem unlikely that the department would sit idly by and watch the erosion of the ES role in CETA. During the first year of CETA, the attitude of the regional offices was mixed. Some, taking as their cue, decentralization and PS autonomy, assumed a "hands-off" position. Others, more concerned over the fate of their "charges", intervened more actively, pushing reluctant state agencies on the one hand and nudging hesitant PSs on the other.

The second year saw a much more consistent and concerted effort by DOL on behalf of the ES. The clearest expression of this is the recent policy of the department urging state agencies to offer direct placement services to PSs at no cost, and requiring PSs to accept the pro-offered services. While this approach may be generally acceptable, there is some opposition both by state ES agencies who do not see their best interest served by CETA involvement and more importantly by PSs who view this policy as an intrusion on their freedom to select deliverers of manpower services with or without costs. This could become a classic confrontation in which the issues of decentralization, use of existing institutions, costs and effectiveness collide. There is sufficient ambiguous language in the statute to provide support for both positions. The DOL may find itself in the dilemma of a parent trying to cope with two fractious offsprings.

Perhaps the bureaucratic skirmishes will ultimately result in some kind of equilibrium. More likely the emerging dual and potentially competitive systems will pose problems that will need to be addressed in a more basic fashion. I see several alternatives.

(i) The simplest approach would be a "laissez-faire" position. Let each PS and ES agency work out their individual accomodations without imposing a set pattern. "Complete security," it is said, "breeds complete complacency"; perhaps competition is a healthier process. The present effort of the DOL to experiment with different types of PS-ES relationships is, I believe, a step in the right direction.

(ii) The other extreme would be to amend CETA and re-introduce the ES as the presumptive deliverer for those functions inherent in the Wagner-Peyser Act; intake, testing, referral, job development, placement and labor market information. All of these services (not only direct placements) might be provided to the PS without cost if additional federal funding were made available to the ES to defray the added costs. This may reduce the PSs' degree of freedom but in return they would have greater resources for use in other activities.

(iii) A "two-tier" system is a possibility. This would divide the manpower turf between the Wagner-Peyser and CETA systems with ES serving the job ready and CETA concentrating on those requiring employability development.

(iv) Finally, Congress could gird its loins and tackle the issue they avoided in 1973 -- a clear differentiation between the functions to be performed under Wagner-Peyser, and those mandated by CETA--or alternatively a merger of the two systems and the creation of a new federal-state-local system.

Whether or not Congressional expectations with respect to delivery systems were realized depends upon one's perceptions of Congressional intent. There are those who believe that the freedom of the PS to choose his own delivery system lies at the heart of the decentralization concept and should, therefore, be a more compelling consideration.

5. Whom did Congress Intend to Serve?

Here again Congress scattered its expectations liberally over the population landscape.

Although there is the customary rhetoric about serving those most in need, the specific eligibility criteria are much broader--the unemployed, the underemployed and the disadvantaged unemployed. In comparing the eligibility criteria of CETA with the earlier manpower statutes and regulations, it is quite clear that Congress moved away from the earlier, almost exclusive focus on the disadvantaged.

And the opening provided by the Congress was widened by a number of other pressures.

- As a result of the recession, many unemployed, but work ready persons were, for the first time, seeking admission to manpower programs in competition with the disadvantaged.

- The incentives built into the CETA system all drive the program operators in the direction of selecting those most likely to succeed rather than those most in need. Contracts are supposed to be awarded on the basis of performance; performance is generally measured by placement; and placement is usually a function of the kinds of people who enter the program--"Outcomes are largely determined by input."

- Decentralization has put the PS in the driver's seat. As an elected official he is accessible and susceptible to pressure from his electorate--a wider and more potent constituency than the disadvantaged. This, too, tends to broaden the CETA clientele.

It is quite clear that CETA participants in Title I are somewhat higher on the socio-economic ladder than their predecessors in the comparable pre-CETA programs. Although the changes are not great, there are now larger proportions of men, persons in the prime working age and the better educated. On the other hand, the proportion of disadvantaged enrollees dropped 12 percentage points.

The changes in the clientele of manpower programs is much more startling when one looks at the characteristics of the public service employment participants. In Title VI, for example, 44 per cent are disadvantaged (compared to 76 per cent in Title I), only 27 per cent (compared to 55 per cent) have less than a high school education and 21 per cent are young people whereas 56 per cent of Title I participants are youth.

This reflects the fact that Title I is supply-oriented while Title VI is demand-oriented.

Although Congress intended that Titles II and VI serve different clientele, exigencies of moment have blurred the distinctions.

These statistics must be treated cautiously.

Sir Josiah Stamp, head of England's Internal Revenue Department at the turn of the century put it rather well:

> "The governments are very keen on amassing statistics. They collect them, add them, raise them to the nth power, take the cube root and prepare wonderful diagrams."

"But you must never forget that every one of these figures comes in the first instances from the village watchman who puts down what he damn pleases."

We would, on the basis of our findings, have to conclude that Congress expected that a wider spectrum of the unemployment population would be served and that this, in fact, is what has occurred.

6. Citizen Participation

Congress fully expected that programs administered locally would involve the community and it encouraged citizen participation in the planning and operation of the program.

Toward this end, Congress required that PS plans be publicized, that comments from interested parties be considered and that public hearings be held.

We found that although most PS complied with the letter of the law, it was in the main largely cosmetic. Citizen participation through these procedures was insignificant.

The most serious effort that Congress made to open the program to the community was the mandating of PS advisory councils. The legislators lavished great care on this section of the law, spelling out in some detail its responsibilities and composition. It did, however, make it clear that the councils were advisory to the PS.

Our survey found that all PSs did indeed establish councils. Typically one-third of the membership consisted of program operators. Although some councils played an active and independent role, the large majority were passive and dominated by the CETA administrators and their staffs. Moreover, since a large proportion of the councils' membership consisted of program operators who were generally the most active and knowledgeable members, problems of conflict of interest soon surfaced. These were handled in various ways. In some instances, program operators were excluded from membership; more often they were permitted membership but denied voting rights on matters which affected their vested interests. And there were instances where there were no restrictions at all.

7. Consortia

In an effort to accomplish by voluntary agreement what it was unwilling to mandate, CETA authorized the use of financial incentives to areas that form interjurisdictional combinations. The results exceeded expectations. It had been thought that consortia would be a difficult and unstable form of local organization because of internal rivalries. However, 135 have been formed in FY 1975, comprising one-third of all PSs.

In the second year of CETA it became apparent that in many instances the only glue holding the consortia together was the financial incentives. Half of the consortia in our sample could be considered as "paper" confederations. In the main the established consortia continued to be stable in the second year. There is, however, a noticeable tendency for areas which can become PSs in their own right to leave consortia.

Of the 9 consortia in our sample, one split up at the end of the first year and two others are expected to lose components by the end of the second year. This development is attributable to:

a) A growing expertise of the sub-units;

b) Friction between cities and suburbs and

c) Political differences within the consortia.

8. The State Role

What role did Congress expect the states to play?

In the interplay of forces that led to the enactment of CETA, state governments were by-passed as a funding conduit in favor of city and county governments. Congress expected the states to perform two functions:

a) Operate CETA programs in the BOS;

b) Assume responsibility for statewide planning, coordination and monitoring of all PS programs through the State Manpower Service Councils.

The first function was a substantive one and handled variously. The general pattern was for the states to delegate the planning and operations to sub-state government units, retaining only nominal control in the state office.

Despite the sweeteners of the five per cent vocational education and the four per cent state services funds, the SMSC did not have sufficient leverage or authority to make any significant impact upon other PS programs in the state. There was little state coordination or monitoring of local programs and Congress probably did not expect very much.

Nonetheless, I believe that the role and performance of the state PS who controls about one-third of all CETA funds, must be one of the more serious aspects of the entire CETA program. I believe that the potential for a state role has not yet been fully explored. In the final analysis, it will depend upon the interest and commitment of the Governor.

9. Resources

What were the Congressional intentions with respect to the allocation of manpower resources?

First, it is apparent that Congress opted for a universal program rather than for one that concentrated on specific target areas. Thus, most of CETA resources are allocated by formula, unlike most of the pre-CETA resources. This was probably a political necessity to muster sufficient votes for enactment. You can be sure that members of the committee knew in advance what the impact of the allocation formula would be in their districts.

Second, it was clear that the primary objective of Congress in distributing resources was to minimize any large shifts in the allocation of funds. To accomplish this, one-half of all funds were distributed in relation to an area's pre-CETA level of funding (50 per cent of formula).

Third, as between allocating funds based on extent of unemployment vs extent of poverty, Congress gave preference to the former.

The effect of these considerations in distributing Title I resources was to shift (relatively) resources from the Southern to the Western and Northwestern States, and more importantly from cities to counties, especially suburban counties.

City PSs, for example, received 36 per cent of Title I allocation in 1975 compared to 42 per cent in 1974; counties increased their relative shares from 21 to 26 per cent. The major reason for this shift was the low weight given to the income criterion in the allocation formula. Shifts would have been much more dramatic if it were not for the 90 per cent hold harmless requirement.

Our survey found that most respondents were only vaguely familiar with the concepts and elements of the various formulas used. Ten PSs criticized the Title I formula because:

a) Not enough weight was given to low income adults and the long-term unemployed;

b) There was too much emphasis on prior year funding (the 50 percent element);

c) No recognition was given to the state of the labor market; and

d) There was no efficiency factor such as performance.

Criticism of the Title II formula included:

a) Seasonality of the unemployment figures. Areas which do not have seasonal peaks during the qualifying time period were adversely affected;

b) Feeling that the 6.5 per cent trigger was too high.

10. Public Service Employment

The enactment of Title VI was the Congressional response, in the manpower arena, to the onset of the recession. It added a counter-cyclical component to CETA which until then had been concerned with the structural problems of the labor market.

With an appropriation of $2.5 billion over a 2-year period, it was expected that approximately 150,000 annual job slots would be created in the public sector in each of the two years. In addition to absorbing some of the unemployed, essential public services would be created. The expected level of jobs was reached and exceeded but there is some question as to whether these represent a net increase in employment that would not have been achieved without Title VI.

Congress anticipated the possibility that local communities, hard pressed for funds, would be unable to resist the temptation to use Title VI monies to substitute for local budgets. In the words of one mayor, "All dollars are green." To forestall this possibility, Congress insisted that all PSs demonstrate "maintenance of effort." This, however, was more easily said than done. It would take an army of auditors and a ton of pencils to adequately monitor the fungibility of CETA dollars. Although we were not entirely successful in quantifying the degree of substitution, our survey suggests that in 10 out of 18 areas, there was some positive net job creation effect. In the other eight areas, there were either losses in public service employment despite CETA or less gains than might have been expected.

Closely related to "substitution" is the "rehires" issue. Congress permitted the rehiring of regular public employees who were laid off for legitimate reasons. We have tried in our survey to determine the extent of layoffs and whether there was any evidence of "paper layoffs." Out of 27 cases we found five where layoffs were reported, although there were instances where the PSs themselves were not aware of the extent of rehires in the balance of state and county situations.

The issue goes beyond "paper layoffs." Even where there are legitimate separations, there is still the question of the degree to which Public Service Employment funds should be used for that purpose. Without some limitation, it is theoretically possible for all Title II and VI funds to be used for rehires. If that were to occur, we would in effect have addressed the problem of unemployment in the public sector (where the unemployment rate is low) to the exclusion of any relief in the private sector where the problem really exists.

In an effort to resolve this issue, the DOL proposes to limit rehires in any area to the proportion that unemployed public workers are to all unemployed workers in the area. This has provoked a Congressional proposal that would prohibit the DOL from setting any numerical or proportional limit on the number of rehires.

11. Program Outcomes

During the first two years of CETA, the focus has been on administration, processes, delivery systems, and speed of implementation. Little attention was paid to what was being delivered. We have been more concerned with the shape of the bottle than with its contents. But what does it avail us if we deliver, more efficiently and with greater speed, rubbish?

There are wide differences as to what is important in manpower programs and how effectiveness should be measured.

Placement rates were most frequently mentioned in our survey, but often in combination with such other measures as reaching target groups, costs, and positive terminations. Some of the survey respondents complained that the emphasis on job placement, stemming from DOL pressure, was misplaced...that it was too narrow and superficial. They felt that programs contributing to the long run employability of participants are more important than rushing a person into a job--often in a low wage, unstable situation.

In terms of placement rates, most areas have poor showings. Nationally for 1976, the placement rate for Title I was 9 per cent for direct placements, 16 for indirect placements, and 6 for self placements.

Areas with relatively high rates report a heavy emphasis on direct and self placements rather than indirect placements which may be a more accurate indication of program effectiveness.

It must be remembered however, that these findings include programs where the heavy emphasis is upon in-school youth and other work experience programs where placements is not the expected outcome.

As one wag put it--Statistics are like bikinis. What is revealed is suggestive; what is concealed is vital.

PENNSYLVANIA OCCUPATIONAL STATISTICS PROGRAM

Arthur Mangan*

One of the great challenges facing manpower planners, vocational educational authorities, researchers in the field of manpower, and industrial managers has been the need for authentic, comprehensive, meaningful information on labor supply and labor demand currently, in the short run and in the longer run.

This was one of the foremost considerations taken up by the well known President's Committee to Appraise Employment and Unemployment Statistics, known as the Gordon Committee, in its final report in 1962. This recommendation of the Gordon Committee resulted in the launching of a program which marked the culmination of efforts of several years to satisfy the long felt need for current reliable national, state and local data on the job situation in industry.

The outgrowth of these recommendations was the establishment of a new program called the Occupational Employment Statistics Program which is supported by the Employment and Training Administration of the U.S. Department of Labor, formerly the Manpower Administration, which cooperates with the U.S. Bureau of Labor Statistics in managing the effort and involves the active participation of state employment security agencies.

The statistical information derived is designed to measure the growth of occupations and the changing occupational structure of the labor force in the United States, the individual states and the local areas.

The collection and analysis of occupational composition patterns of industries will show how different industries employ workers in the various skills, the factors affecting occupational composition and the trends which reflect technological and other changes. Not only will this information provide a basis for projecting manpower requirements by occupation and satisfy some of the needs specified in legislation for vocational education and manpower training, but also will serve to assist in estimating manpower implications of proposed new government programs such as those in the field of housing, construction, pollution control, health and urban mass transit. Local employment service offices need information on the occupational patterns of industries to locate employment opportunities for applicants.

Summary of Program

Data are collected by state agencies and used to develop state and area statistics and are also sent to the Bureau of Labor Statistics in Washington. Although only 15 states participated initially in this new program, the current total comes to 34 states, more than double the original number which began in 1971 and of this total of 34, three states have considered this program important enough to conduct it without federal financial support, while the remaining states do have substantial federal allocations of funds. It is intended that all 50 states ultimately will participate in this program.

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While it is not my intention to try to develop for you the technical processes under which this program is conducted, I will nevertheless present enough of the methodology to give you a capsule idea of how the program is organized. First, specially prepared lists of occupations were designed for each industry or each group of industries that generally employ the same kinds of occupations. Then definitions were developed to accompany the different occupational lists. The lists include 80 occupations that are standard for all industries plus 45 to 120 occupations appropriate to individual industries. These definitions were constructed after considerable research which involved not only the government program planners but representatives of the industries in which the occupations resided.

It was absolutely essential to include in the survey forms these descriptions so that the information derived would be based on some kind of standard. I remember that several years ago the Pennsylvania Bureau of Employment Security attempted to survey the occupational needs of the employers in one of our counties. There were no preconceived definitions of occupations but only a request for employers to list the occupations in their industries and indicate what was the current number in those occupations together with the future requirements. While the employers generally showed a willingness to cooperate in this survey, there was a substantial amount of confusion because not all employers meant the same thing when they listed the same occupation. For example: What is a millwright? Ten different employers might mean 10 different things when they indicate that they employ millwrights. Without some kind of standard definition of this occupation, the data are meaningless. With this practical experience as a background, we concluded that any kind of a survey of occupational employment must have well defined occupational terms.

The occupational employment surveys run in cycles beginning with manufacturing the first year, nonmanufacturing the second year and trade and regulated industries the third year. Also, in most states a survey of government occupations has been conducted. The cycle will then resume in the fourth year with another survey of manufacturing. After review of several successive resurveys of each industry the frequency of resurveys will be adjusted so that fast changing industries will be surveyed more often than those changing slowly. The state and area samples are stratified by industry and establishment size.

In developing a methodology to get occupational data, the Bureau of Labor Statistics studies various alternative methods of collecting such information including the Census of Population, Current Population Survey and the bureau's Industry Wage Surveys which are used as sources of occupational employment data. Other possible sources were income tax forms and employer's wage credit reports to the Social Security Administration. It was concluded, however, that the only way to obtain the occupational details required would be to design a new survey.

The Methodology of the Surveys

The Bureau of Labor Statistics drew heavily on its experience in collecting data. Surveys of employment in scientific and technical personnel in industry were conducted almost every year since 1959, collecting data on employment in 18 specific fields of science, engineering and technical occupations. A mail questionnaire with precise definitions of the occupations required was used. Pilot

surveys were conducted in the computing and accounting machinery industry in 1966 and the communications equipment industry in 1967, 1968 and 1970 to test the feasibility of collecting data on other occuaptions by mail questionnaire. In 1968 a comprehensive survey of the material-working industries was conducted, collecting data on 54 clerical and blue-collar occupations. A survey of the printing and publishing industry, using a list of 97 occupations, was conducted in 1970. A review of the experience of state surveys conducted in Utah and South Carolina also contributed to an understanding of the problems in occupational survey questionnaires.

These studies showed that collection of occupational data by mail is feasible although some ambiguities in reporting could be expected, and in most industries a structured questionnaire listing and defining occupations would provide more uniform data at lower costs than an unstructured questionnaire. Other methodological testing in participating states included evaluation of mail collection versus personal visit, collecting data on job vacancies as well as filled jobs, and designing the optimum sample size.

Occupational Lists

The lists and definitions of occupations for each industry were initially developed in the Bureau of Labor Statistics. They were reviewed by the state agencies, the Occupational Analysis Field Centers of the Manpower Administration, trade unions, employer associations and a cross section of 535 manufacturing firms--a review that resulted in many improvements.

In order to identify emerging occupations, employers are asked to list the important additional occupations to be considered for inclusion in subsequent resurveys. These additional listings will also identify cases where firms are making such widely different products at the same plant that the occupational lists provided for the major production activity failed to include those employed in the minor products.

A critical question is, of course, the accuracy of response to be expected. Differences in terminology among plants in industrial parts of the country are widespread. There are differences among plants in the content of occupation with the same title (for example, "Inspectors") and members of the same general occupation and different duties and responsibilities from plant to plant. Therefore, even the brief definitions on the questionnaires help in obtaining greater uniformity. A check of response accuracy is also included for a sample of respondents.

In designing the occupational lists it was necessary to compromise for the complete coverage of all occupations in which there was an interest and a desire to avoid burdening responding firms with overall long lists of occupations, many of which would not be relevant. In part, this dilemma was avoided by different specific occupation lists for each type of industry. The complexity of conducting a survey with a very large number of different questionnaires precluded development of as many separate lists as would have been desirable. To reduce the length of each industrial list occupations which are believed to occur very infrequently in the industry were omitted.

Occupation-Industry Matrix

To arrive at estimated totals for employment in such occupations it was necessary to supplement the survey by other sources of information. One of the major sources is the Census of Population, which for those occupations which it publishes separately, shows employment in each industry regardless of how small the number is. It was expected that the new program would directly collect data on such occupations in industries employing at least 80 to 90 per cent of the members of each occupation and that remaining small percentage will have to be estimated from industrial-occupational patterns based on the most recent census. An Occupation-Industry Matrix, similar to that already used by the bureau but more specific in occupational and industrial coverage, has been developed for this purpose. The error in the total resulting from an estimate of this kind is relatively small.

Finally, the matrix will be used to develop annual estimates of total employment by occupation even though the survey contemplates less frequent collection in each industry. Current employment by occupation would be estimated by applying current or recent occupation patterns to current total employment in each industry.

Occupational Classification

A basic question in designing a survey of employment by occupation is the occupational classification system that will be used. Neither of the two major occupational classification systems used in the United States--in the Census of Population and in the Dictionary of Occupational Titles (DOT)--are completely satisfactory for this purpose.

The Census has the advantage of having been used for several successive censuses and for the Current Population Survey, so that collected data are available for analysis of trends in occupational employment. Definitions of the occupations do not exist; there is instead a manual which is used in classifying the thousands of occupational titles reported by individuals to the Bureau of Census into some 300 categories used in the published statistics. The census classification system has been criticized for reflecting broad socioeconomic analysis interests rather than the needs for manpower analysis and planning, which focus on relationships among occupations based on the skills needed and transferability of workers from one occupation to another.

The Dictionary of Occupational Titles, on the other hand, provides definitions of each occupation and is organized to meet the operating needs of the public employment services in such a way as to reflect job relationships and possible worker mobility. The DOT is also much more detailed than the published census classification system, going into 22,000 occupations. The broad structure of the two classifications systems is rather similar for white-collar occupations, but in the manual occupations the Census system differentiates among craftsmen, operatives, and laborers while the DOT differentiates between major types of occupations on the basis of the character of the work (processing, machine trades, benchwork, structural work) rather than the level of skill.

A federal Interagency Committee on Occupational Classification, under the auspices of the Office of Management and Budget, has been working on developing a standard occupational classification system for a number of years, and it is hoped that this effort will ultimately result in a usable occupational classification system for the collection of employment by occupation. In the meantime, an ad hoc occupational classification system has been developed for the present survey program, somewhat similar in broad structure to the Census system but considerably more detailed at the individual occupation level, and generally convertible to the DOT titles.

Two characteristics of the classification system derive from its intended uses in manpower planning. First, it attempts to identify occupations as groups of jobs among which there is substitutability or a high degree of mobility for the workers. Second, since the data will be used for planning programs of training in light of future manpower needs, the greatest emphasis and specificity is given to occupations requiring extended periods of training or special education. Large numbers of occupations which are not really differentiated in terms of training or education but which can be entered with minimal on-the-job instructions are grouped together in aggregates.

Since occupational classification is in process of development--a development to which the data and experience arising out of this survey program will contribute--the occupational terminology and classification in the system is flexible. We must avoid getting locked into the present system by inertia and by the very real need to develop data comparable over time for analyzing trends. This dilemma is always present--witness the revisions of the Standard Industrial Classification--but the a[illegible]ment for flexibility is stronger here because we now lack a standard occup[illegible]nal classification, and because occupational lines are less firmly fixed th[illegible]ndustry lines. The way work is organized--the basis of occupational c[illegible]sification--may be more subject to change than the products made or services rendered, which are the subject matter of industrial classification. Bakeries may be automated, but we will still make bread.

The Establishment Unit

In analyzing the occupational composition of industries, the way in which establishment units in large companies are handled in the survey becomes important. Problems arise in companies in which parts of the work are carried on in separate establishments, such as central administrative offices, research laboratories, warehouses, or any other auxiliary units. The individual units will employ different occupations and should be combined for comparison with establishments in which the entire work goes on in a single unit. This poses problems of unit identification. There are additional problems when a single auxiliary unit serves more than one establishment in a company engaged in more than one industry. Is this separate unit allocated to the industry which represents the largest product? Is it prorated to all the component industries it serves?

State employment security agencies, which are interested in the local occupational employment, find combinations required for analytical purposes undesirable. The use of a national occupational pattern for an industry to estimate local employment in that industry would not be possible for such establishments, and it is necessary to develop appropriate patterns for auxiliary units in each industry in which they occur.

Research

The program of research and analysis to be conducted with the results of the survey dictates the survey design. The research will be in part methodological research required for further development of the statistical collection program, and in part substantive research focusing on significant problem areas in occupational employment and in manpower analysis. Among the questions to be asked are the following:

Methodological

1. How can we use patterns developed at a national level, together with data on employment by industry locally, to make estimates of employment by occupations locally, and thus save resources that would otherwise have to be spent on expanding the samples of various industries locally? The accuracy with which such estimates could be made would depend on the interplant variability in occupational composition in each industry.

2. How frequently do we need to make surveys for each industry--how rapidly does the occupational composition of industries change?

3. How large a sample is needed to provide data to specified levels of accuracy for each industry?

4. How accurately do plants report their employment by occupation and how can we so define and list the occupations as to improve the accuracy of reporting? This question involves research into the accuracy of response.

Substantive

1. Measuring the growth of employment in each occupation in order to see the broad trends in occupational growth, to see the success of training programs in adding to the supply of workers in each occupation, and to measure the Nation's resources of skilled workers.

2. Making projections of employment by occupation nationally and locally. This requires analysis of the way in which occupational composition of each industry is changing--the effects of technological and organizational changes in industry.

3. Developing insight into differences in organization of work from plant to plant within the same industry and among industries, and the role of technology, product-mix, wage rates, and local demand-supply relationships. This area of research is of particular interest to industrial management.

From this brief listing of major research objectives, it is clear that it will be necessary to develop a measure of interplant variability in occupational composition among plants in the same industry, which could be used to examine the factors that may affect occupational composition, to determine the sample size needed for accurate estimates, and to evaluate the accuracy of estimates of local occupational employment made by using national occupational patterns.

In general, the systematic development of data on employment by occupation opens broad research vistas. The measurement of numbers has often been a first step in exposing anomalies and intriguing differences that lead to deeper research. One area of inquiry to which these data will contribute is the long-standing issue in industrial management as to the best way to organize work for optimum long-run efficiency--as between maximum division of labor on one hand and "job enlargement" on the other. Another subject for study is the constraint on management's ability to reorganize work. Has management less freedom with respect to externally trained workers (professional workers, maintenance crafts, stenographers) than with respect to internally trained workers such as those engaged in production processes? The relation of supply and demand in occupations and occupational mobility to wage rates is another broad area of research to which the employment data will contribute.

In summary, the development of an occupation employment statistics system is long overdue.

One more word about the actual results obtained in the survey in Pennsylvania. Approximately 7,6000 firms in manufacturing were surveyed and responses were received from 5,500 of them covering about 70 per cent of total employment in the industry. Data for 115 two- and three-digit industry groups have been published.

In nonmanufacturing, 11,600 firms were surveyed and 8,600 responses were received, covering 73 per cent of total employment. Publication of the results of this survey will be forthcoming before the end of 1976. The survey of trade has begun but has not been completed.

Future plans call for publication of information by local area also. Already, for nonmanufacturing, Northeast Pennsylvania, the Scranton-Wilkes-Barre area, has been surveyed independently. In trade, both Philadelphia and Pittsburgh will be treated separately. Ultimately all SMSA's will have their own publication.

Future plans for occupational projections also include a very substantial expansion of industries and occupations. The current approximately 210 industries and 440 occupations will be increased to 1,000 industries and 2,4000 occupations. These are ambitious plans which will take a while to accomplish but upon their fulfillment, we will be entering a new horizon in the field of labor market information.

UNDEREMPLOYMENT: CONCEPTUAL ISSUES

Gerald P. Glyde*

Introduction

In 1976, most individuals are well aware of, and continually reminded of, the need for the efficient use of our natural resources. Just as important is the need for the efficient use of our human resources. This paper is concerned with the latter issue. The efficient use of human resources can be interpreted broadly as a condition where jobs are provided for those individuals who want them; where jobs utilize abilities, education and training of individuals; and where jobs provide workers with satisfaction in their endeavors. The underutilization of human resources occurs in diverse forms. An important and major portion of this labor market failure is identified by our official unemployment measures, which estimate the number of people not working, but who are actively seeking and available for work.[1] Recent research on what has become known as subemployment has attempted to extend the measure of labor market disfunction by explicitly taking account of discouraged workers, involuntary part-time workers,[2] and income inadequacy in full-time employment, and adding these aspects to the official unemployment measures.[3]

This paper focuses on yet another dimension of labor market failure, viz. involuntary underemployment. This condition arises when workers' acquired skills exceed, or do not match, the skill requirements of their jobs. Much less attention has been given to this problem than to unemployment and subemployment. One of the major reasons for this neglect is that underemployment is both conceptually and empirically more elusive. To illustrate, consider the definition of underemployment provided by the Gordon Committee.[4] Underemployment is defined as "...employment of persons at jobs that call for less than their highest level of skill and at wages less than those to which their skills, if fully utilized, would normally entitle them."[5] A number of questions arise with this definition as they would with other definitions. At a minimum, extensive qualifications are necessary. For example, what does highest level of skill mean? Does skill refer to potential or current skill, including formal and informal training? What does fully utilize mean? What numeraire would be used to determine what individuals would normally earn if their skills were fully utilized? What is the intended link between wages and the utilization of skills. These questions serve to illustrate some of the difficulties inherent in the notion of underemployment.

This paper has the modest objective of exploring further some of the conceptual implications of underemployment by, first, suggesting a comprehensive definition of underemployment and identifying two major forms of it, and, second, by expanding upon and clarifying key words or phrases in that definition. This exercise is designed to reveal some of the problems that need to be addressed prior to attempts at a comprehensive measure of underemployment. Hopefully, the discussion provided here will encourage others who use the term underemployment to consider more closely what they mean by it. In addition, it is hoped

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that this paper will encourage others to work toward a measure of underemployment. As education levels rise, it is expected that such a measure will become increasingly important in monitoring the labor market and in achieving a number of public policy objectives.

A Definition and Two Major Forms of Underemployment

For discussion purposes, underemployment is defined here as an involuntary employment condition where workers are in jobs, either part-time or full-time, in which their current skills, including formal and work experience training, are technically underutilized and thus undervalued relative to those of other individuals of similar ability who have made equivalent investments in skill development. This rather cumbersome and lengthy definition is presented so that many of the key conceptual problems related to underemployment can be addressed within that definition.

Prior to focusing on particular elements of the definition, two major forms of underemployment can be distinguished; for convenience they are referred to as intraskill and interskill underemployment. The former occurs when particular individuals or cohorts of individuals within an identifiable skill group are less able to utilize their skills than is the average individual from this skill group. That is, they have the equivalent ability and occupational preparation as the comparison group, but some real or perceived characteristic of these individuals is the source of their underemployment, not the marketability of the skill in question. Examples of the sources of intraskill underemployment would include (a) imperfect and costly labor market information, leading to less than ideal hiring and promotion methods and expensive job search for particular individuals or groups of individuals, (b) labor market discrimination, where nonproductivity related factors determine worker-job matches, (c) costs of labor mobility and (d) the desire for part-time work, where the distribution of job opportunities does not match the skills of those individuals desiring less than full-time jobs. These illustrative factors would suggest that characteristics such as race, age, sex, residential location, labor force attachment, work history, credentials, would be correlates of underemployment.

In contrast to intraskill underemployment, interskill underemployment refers to a condition where the average individual in a particular skill group is underutilized in employment relative to the typical individual from other skill groups where training investment costs are the same but the nature of the occupational preparation differs. It is the nature of the skill that these underemployed individuals possess, not any personal characteristic, which causes their problem.

Sources of interskill underemployment include shifts in demand for and supply of labor across occupations, lags in labor market adjustment, retraining costs, and imperfect information. Since the labor requirements of firms are a derived demand, the dynamics of markets for goods and services, and the resultant adjustment processes, are bound to favor certain skill groups and disfavor others. Individuals with skills appropriate to disfavored occupations are more likely to be underemployed than are individuals whose skills match the requirements of favored occupations. Layoffs in disfavored occupations, and the inadequacy of new job vacancies in them, can be expected to direct persons to other jobs where their skills match job requirements less closely. Of course,

it is possible for individuals to adjust their skills, but the response of labor supply to changes in demand are often sluggish. Human capital investments, especially for older people, tend to be irreversible due to cost (time) factors. The result of this immobility of skill in the face of declining demand will often be underemployment rather than retraining.

Clarification of the Definition of Underemployment

In this section of the paper, key words or phrases of the definition provided above are discussed. In this manner some of the important conceptual issues concerning underemployment can be identified. The discussion follows the order in which the key terms of phrase appear in the definition as given.

Underemployment is referred to as an involuntary employment condition. This view is consistent with the official concept of unemployment which is by definition an involuntary condition. It may be of interest to know why certain individuals choose to work in jobs which do not effectively utilize their skills; however, from a public policy point of view it is more important to identify labor market barriers which prevent individuals from doing so. Note also that underemployment as defined is restricted to underutilization of labor in employment; it does not cover conditions where individuals are unemployed or out of the labor force. Viewing underemployment as underutilization in employment does not mean that underemployment and unemployment are not closely linked in a dynamic labor market. If underemployment increases in the labor market, then new entrants to the labor market will begin to enter at job levels previously held by individuals with lesser skills. This "bumping down" process will eventually lead to the least skilled workers being "bumped out" into unemployment, or the least skilled entrants will not find work. Changes in demand (number and skill level of job vacancies) and supply (number and skill level of workers) in the labor market will influence the distribution of both unemployment and underemployment.

Underemployment is viewed here as a problem of workers. This distinction is made because what is underutilization of labor for the individual may not be underutilization for the employer, or for society.[6] Other factors the same, employers will be better off in terms of lower unit costs if work positions held by less skilled workers are upgraded by hiring more skilled workers for these jobs (at some point, over qualified workers could become a liability). This strategy could lead to underutilization for the worker, while being desirable for the firm. An employer, who is able to discriminate against certain workers pays them less than some norm for skills which the worker possesses, does not view the situation as an inefficient one. Nevertheless, the individual who is subject to discrimination is clearly underemployed from his/her point of view. Keeping a ready national defense establishment, and other contingency oriented government agencies, may be purposeful and efficient from society's perspective, but may result in individual underemployment except in times of crisis. The armed forces may be the most extreme example of purposeful underemployment to meet national objectives.

In our official unemployment measures, those individuals not working, but actively seeking part-time work, are treated in the same way as are individuals who are not working, but actively seeking full-time work. Consistent with this view, the definition provided above states that underemployment may

occur in either part-time or full-time jobs. The criterion for inclusion is whether the individual's skills are underutilized per unit of time worker, and not on the basis of how many hours are worked. It would be presumptuous to discount underemployment in the part-time labor market from two points of view. First, nearly 15 per cent of the employed are in part-time jobs, a substantial part of the work force. Second, the failure to utilize skills may be as harmful to part-time workers as to full-time workers. In fact, given the limited range of skilled jobs in the part-time sector, the probability of underemployment there is likely to be greater than in the full-time labor market.

In comparing skills of workers with skill requirements of their jobs, the ideal focus is on current skills, not potential or past skills. If potential skills are compared with job requirements, then almost every worker must be considered underemployed since they have the potential, with additional training or with improved complementary inputs, to raise their level of productivity. It is clearly important that people receive an adequate level or amount of training. The focus of underemployment, however, is on the issue of how well they use the skills they are presently endowed with. Just as everyone is potentially more productive with additional training, so can everyone be more productive with additional complementary physical capital. But we must take the current stock of capital, both physical and human, as given in order to judge the extent to which current human resources are underutilized.

Education completed at some period in the past, but not complemented by work experience, may result in erosion of human capital or skill in the same way that physical capital can be expected to depreciate if not used. On-the-job training provides substantial additional increments to human capital for a worker as well as complementing formal education.[7] Given that work experience and on-the-job training are significant components of human capital, then current skills as measured by a certified degree or formal number of years of education will understate the true skill level of a worker who has received significant complementary skills from his job. A measure of underemployment should take on-the-job training into account. Employers themselves often forget that skills are not necessarily reflected in formal or certified skills, and workers may suffer underemployment due to credentialism. Identifying actual skill levels of workers and separating these skills into identifiable clusters is clearly one of the main difficulties in measuring underemployment.

In the definition provided above, workers are said to be underemployed if their current skills are technically underutilized and thus undervalued. In order to be more explicit on this point, two questions need to be considered. First, what does technically underutilized refer to; second, what is the assumed link between underutilization and undervalued. Technical underutilization refers to a direct comparison between the skills of workers and the skill content of their jobs where workers' acquired skills exceed, or do not match, job requirements. This type of direct comparison would be desirable if an extensive classification scheme were available for categorizing both the current skills of workers and the current skill content of jobs. Above, it has already been noted that accurately identifying skills on the supply side is difficult, particularly taking account of on-the-job training. On the demand side, assessing job content and job clusters (jobs which are homogeneous in terms of the transferability of skills among them) is perhaps an even more formidable task.[8]

In the absence of a direct comparison between workers' skills and skill content of their jobs, it is expected that technical underutilization would be reflected by the undervaluation of workers' skills. The undervaluation would take the form of lower wages than would occur in the absence of technical underutilization. This is the intended link between underutilization and undervalued as stated in the definition. Assuming that education and training provide specific skills and that jobs contain specific tasks, it is expected that employers will pay a premium to workers whose skills most closely match job requirements. Alternatively, the premium may be in the form of obtaining the work position. That is, if two workers apply for a job vacancy, the worker with the most closely related skills will get the job. Employers behave this way because, other things the same, the marginal product of a worker will be greater the more exact the match between his/her skills and job requirements. The posited relation between underutilization and undervaluation suggests that initial measures of intraskill underemployment might concentrate on wage variations across various labor force cohorts whose acquired skills are judged to be homogeneous. Of course, if variations in wages of workers are determined largely by factors other than skill, then this approach may not be helpful. However, the human capital literature suggests that skill is an important determinant of wages, albeit, a considerable residual variation remains.

There is some empirical support for the conceptual view expressed above. A recent survey of nearly one-half million individuals who graduated from college in 1972, and who were working full-time, showed that the more directly the individuals' jobs related to their education, the closer actual earnings were to the individuals' expected earnings. Over 50 per cent of those individuals who stated that their jobs were directly related to their education, stated that their pay was about the same as they expected. Only 28 per cent of those individuals who stated that their training was not directly relate to their job stated that actual earnings were consistent with their expectations. For the first group, only 11 per cent earned substantially below what they had expected; however, for the second group, 35 per cent earned substantially lower pay than expected.[9]

Underemployment is a relative concept. That is, there is a need to ask the question: Individuals are underemployed or undervalued relative to whom? The definition suggests that the numeraire would be based on the wages of other workers of similar ability who have made equivalent investments in skill development. In the case of intraskill underemployment, the relevant comparison group would be individuals who have incurred equivalent training investment costs in the same areas of occupational preparation. It is this group's average wage that could be compared to the wages of particular classes of workers within this group who a priori are expected to be underemployed. If interskill underemployment is considered, the comparison would be between the average wage for a particular skill group and the average wage of other skill groups requiring equivalent investment costs but in different areas of occupational preparation. This approach to identifying underemployment faces all the same empirical problems as do studies investigating wage differentials and rates of return to human capital investment.

Concluding Comments

If competitive conditions accurately described the workings of the labor market, if information regarding job vacancies and skills of workers was abundant and free, if labor market and skill adjustments were rapid and

costless, if discrimination did not exist, then underemployment, like unemployment, would only be a temporary phenomenon. However, the labor market is in important respects made up of non-competing groups, labor market information is imperfect, and the search for it is expensive both for employers and for workers. Adjustment or labor market mobility is often sluggish; risk and uncertainty is the rule and not the exception. Given the fluidity of the labor market it is not suprising that considerable underemployment may arise, given barriers to smooth adjustment.

Unemployment is the most frequently cited result of disfunction in the labor market, at least our labor force statistics are biased in this direction. Emphasis is on the measurement of underutilization of human resources stemming from an inadequate number of jobs, rather than on the underutilization of human resources in work. This emphasis may be entirely appropriate, yet given the size of the employed labor force, compared to the unemployed labor force, underutilization within employment may represent more lost output and frustration in an absolute sense than does unemployment. However, for individuals, no job may be much worse than a less than satisfactory job.

Underemployment refers to an involuntary employment condition where workers' acquired skills exceed the skill requirements of the jobs that they perform. In this spirit, a more comprehensive definition of underemployment has been suggested in this paper, within which, a number of conceptual points can be addressed. Two forms of underemployment have been distinguished: Intraskill and interskill underemployment. Intraskill underemployment obtains when particular individuals, or groups of individuals, within an indentifiable skill group are less able to utilize their skills than is the average person, of equivalent ability, who is endowed with these skills. The cause of underemployment in this case is not the general marketability of the skill in question, but rather, the problem lies with the marketability of the individual(s) due to some characteristic he/she possesses, or is perceived to possess by others. Interskill underemployment occurs when the average individual in a skill group has difficulty utilizing that skill because it is less marketable than other skills requiring the same investment cost. In order to assess the degree of underemployment directly, extensive data would be required on both skill levels acquired by workers and the skill content of their jobs. In the absence of job content information, it has been suggested here that investigating the dispersion of earnings within skill groups may indicate intraskill underemployment. This view is based on the assumption that, other factors the same, wages will be higher the more fully skills are utilized. An investigation of interskill underemployment would focus on wage differences between skill groups which require equivalent investment costs to attain, but are in different areas of occupational preparation.

The causes of underemployment are diverse. They include such factors as imperfect labor market information, the costs of search for workers and jobs, and discrimination. In addition, costs of labor mobility and shifts in demand and supply of labor, and lags in adjustment to these shifts, are sources of underemployment. Consequences of underemployment for individuals are low earnings, feedback effects which reduce the amount of future human capital accumulation, possible job dissatisfaction and alienation from work. For society, underemployment, like unemployment, represents an inefficient usage of human resources and lost output.

FOOTNOTES

[1]See: U.S. Bureau of Labor Statistics, How the Government Measures Unemployment, Report 418 (Washington, D.C.: Government Printing Office, 1973).

[2]The Bureau of Labor Statistics now collects and publishes data on involuntary part-time and discouraged workers but does not incoporate these data into the official estimate of unemployment.

[3]For example, see Thomas Vietorisz, R. Meir and J. Giblin, "Subemployment: Exclusion and Inadequacy Indexes," Monthly Labor Review 98 (May 1975): 3-12.

[4]U.S. President's Committee to Appraise Employment and Unemployment Statistics, Measuring Employment and Unemployment (Washington, D.C.: Government Printing Office, 1962).

[5]Ibid.:58.

[6]This point is raised but not resolved in Glen Cain, Richard B. Freemen, and W. Lee Hansen, Labor Market Analysis of Engineers and Technical Workers (Baltimore: John Hopkins Press, 1973):32.

[7]Jacob Mincer, Schooling, Experience and Earnings (New York: National Bureau of Economic Research, 1974).

[8]See: James G. Scoville, Manpower and Occupational Analysis: Concepts and Measurement (Lexington, Mass.: D.C. Heath and Company, 1972).

[9]See U.S. Bureau of Labor Statistics, Labor Market Experience of Recent College Graduates, Special Labor Force Report, Number 169 (Washington, D.C.: Government Printing Office, 1974).

WORK--NOT SCHOOL--COMES FIRST

Robert E. Feir*

Since we have been raised to think chronologically, we most often come to the logical conclusion that school comes "before" work. This is obviously true in the sense that universal free public education in the United States provides schooling opportunities for virtually all children prior to their entry into the labor force. It is not so obviously true if we examine the more important question of whether school or work is the preeminent institution in the development of children into adult members of society. It is my contention that the world of work is indeed preeminent, that it precedes schooling in the sense that it directs the educational enterprise, and that a child's development and relationships reflect the world of work in many ways. It is my purpose this morning to attempt to discuss two broad topics. The first is the area of what is salient to a small child entering school--an individual approach to the larger issues of schooling and work. The second is the structure and direction of public education and its relationship with the economic structure and direction of the nation--a societal approach to the issues at hand. I will attempt to look at each of these two areas briefly and then to tie them together through a challenge to my colleagues in the education community.

Prior to diving headlong into the matter at hand, however, it is important to try to examine those values which inform the following discussion. First, it is important to remember that the American economy is based upon the need to make profits and upon the need to maintain the economic division between capitalists and some managers on the one hand and workers on the other. It is, most assuredly, not concerned with democracy or equality. While this is not the time for a detailed examination of the American economy, it is hoped that this much at least can be said without serious question. (The argument that upward mobility allows workers to become managers or even, on occasion, owners, does not seriously affect the basic structure of the economic system per se, for upward mobility works only for a relatively small number of individuals, not for whole classes of people. In fact, the very concept of upward mobility assumes the maintenance of a class structure through which people can move.) In order to help maintain this economic system, the owners and managers must look to the next generation to provide both new managers and new workers, and they look to the schools, which have become reasonably universal screening agencies, to provide the necessary manpower. Second, public education (or at least its philosophical basis in this country), while recognizing its role in transferring economic values, also utilizes a rhetoric of democracy and equality. Cremin sees public education in this country as tending toward, but not yet fully achieving, democratization and equality."[1] Discussing democratic education, the Commission on the Reorganization of Secondary Education writes that such education should "develop in each individual the knowledge, interests, ideals, habits, and powers whereby he will find his place and use that place to shape both himself and society toward ever nobler ends."[2] And Dewey adds: "A society which makes provision for participation in its good of all its members on equal terms and which secures flexible readjustment of its institutions through interaction of the different forms of associated life is in so far democratic. Such a society must have a type of education which gives individuals a personal interest in social relationships and control . . . ."[3] If one were to poll educational practitioners--teachers, administrators, school board members--one would find

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few who oppose democracy and equal opportunity for children. Cremin's view that schools have helped children to climb the economic ladder would undoubtedly prevail with most educators. Yet there is another view, one which, I would argue, actually prevails. That position was stated simply by Freeman half a century ago: "It is the business of the school to help the child to acquire such an attitude toward the inequalities of life, whether in accomplishment or in reward, that he may adjust himself to its conditions with the least possible friction."[4]

What follows is an effort to explain why this latter view actually governs education, by looking first at the dispositions of a child approaching school for the first time and the school's response to that child, and second at the larger relationships between the economy and the schools. As he began to look at the influence of business values on education, Callahan expected to find some elements of control. "What was unexpected was the extent, not only of the power of the business-industrial groups, but of the strength of the business ideology in the American culture on the one hand and the extreme weakness and vulnerability of schoolmen, especially school administrators, on the other."[5]

I.

Prior to attending school, a young child has been exposed to relatively few influences, of which parents are typically the most important. It should be added that television has increasingly assumed the role of surrogate parent, particularly since it is so easily accessible in an age when increasing numbers of families are supported by two parents working outside the home. The young child about to enter school has relatively few well-formed conceptions about that outside world, but the world of work is at least as salient as the world of school. There are any number of explanations for this. First, most parents know very little about the schools (especially when they are sending their first child) and can therefore relate little to the child in terms of what he or she can expect in the first institutional encounter outside the home. Second, work is salient for adults, perhaps particularly so for young parents, given that a child is a significant incentive to pursue the most tangible rewards of work. Third, television portrays a variety of work situations--albeit a socially and politically "safe" range of such options, often overly glamorized and overly simplified--but does not tell a young child very much about school. Even "educational" programming is not preparatory to the school environment.

Those who have worked with young children in schools tell me that the child comes to school knowing something, limited as that might be, about adult life. Many children know a little bit about what their parents do and what their TV heroes do. Few know what to expect in school.

Rather than trying to build upon areas of children's knowledge and interests, however, most elementary schools start right in teaching children about delayed gratification, a trait which is highly valued by teachers and future employers.[6] The school sets a course of its own, developing attitudes toward learning and cognitive skills, rather than exploring areas already familiar to children. Such exploration however, would be possible, perhaps even preferable. "Recent research has indicated that developmental maturation, in terms of career education, really begins during the first year of school . . . ."[7] As long ago as 1960, some realized that "experiences that provide a broad foundation from which eventual career choices can be made should be offered throughout the entire schooling process. Such experiences are most critical and have the greatest impact when provided during the early school years."[8]

Despite growing evidence that children can relate to adult life and that learning through such relationships can be extremely meaningful, most schools persist in rather narrow cognitive approaches. This is ordinarily justified on the basis of long-term student need. Since many studies have shown a correlation between either cognitive development (test scores) or years of schooling and economic success, educators argue that cognitive development must be stressed in school. It is difficult to refute this argument, at least on one level. It is true that few functional illiterates are economically successful in today's job market. It is equally true that schooling most often has the effect (at least secondarily) of providing young people with some "polish," which is certainly important in the world of work. However, the emphasis on cognitive development and schooling per se is overstated. Berg points out that even sophisticated empirical studies have failed to distinguish how much education and what level of cognitive skills are necessary different jobs and roles in adult society.[9] Jencks and his associates see cognitive skills as accounting for only a small portion of the variance in adult occupational status. Years of schooling, on the other hand explains a significant portion of the variance in adult occupational status. Years of schooling, on the other hand, explains a significant portion of the variance, not, however, because schooling necessarily prepares a person for work, but because most people attach deference to credentials and therefore value occupations entered by those with substantial amounts of schooling.[10]

It should be added that children, in learning something about what their parents do, also internalize society's sex stereotypes. Despite the growth of the working mothers segment of the labor force, housework remains a predominantly female, predominantly unpaid role, while active involvement in the labor market remains a predominantly male role.

There is another way in which work precedes school for the young child. In a massive ten-year study for the National Institute of Mental Health, Kohn uncovered some interesting relationships between occupational status of parents and child-rearing patterns. Lower status parents value obedience, neatness, and honesty; higher status parents value curiosity, self-control, consideration, and happiness.[11] Lower status parents punish children for transgressing explicit rules, while higher class parents punish children for lapses of internalized norms.[12] Thus children are prepared for institutional encounters outside the home largely on the basis of their parent's status.

Despite the fact that many families are hierarchically ordered and that child-rearing patterns relate to the hierarchical status position of families in the larger society, it is still true that the nature of family life is substantially different from that of institutional life. For one thing, it is ordinarily based upon close emotional attachments. For another, it is often viewed as a refuge from institutional life, including the world of work. Bowles and Gintis, who attempt to show the pervasive influence of the economic system upon schooling, suggest that it is in part because of this difference between family life and institutional life that "schooling [performs] such a necessary role in the integration of young people into the wage-labor system."[13]

The job of the school seems to be to assure that the economic system is provided with a balanced source of labor, so that the economic system can perpetuate itself. This process begins with children learning from their parents, who raise them, in part based upon values they themselves learn at work. Schools reinforce differential child-rearing patterns through a process of tracking either formal or informal--which is designed to prepare children for their ultimate adult roles--which are most often very much like those of their parents.

"Successful job performance at low hierarchical levels requires the workers' orientation toward rule-following and conformity to external authority, while successful performance at higher levels requires behavior according to internalized norms. It would be surprising, indeed, if these general orientations did not manifest themselves in parental priorities for the rearing of their children."[14]

II.

What is the real purpose of public education? Who is really served by that purpose? The real purpose of public education is, I believe, socialization, preparation for one's role in adult life, particularly the work force, and internalization of norms. Cognitive learning is important primarily because it serves to prepare students for jobs, or because it prepares them for processes they will need to know how to repeat. In the larger societal context, the purpose of public education is to allocate children to differentiated adult roles. Not everyone can be a brain surgeon or a plant manager. Most children must be prepared for rather dull vocational futures, marked by relative powerlessness, and the schools have been assigned the tasks of preparation and screening. This purpose really serves the industrial elite, the community leaders whose decisions are critical for the functioning of all institutions--industrial and social.

It is necessary to avoid oversimplifying the argument. The schools do, by any calculation and from any point of view, have a responsibility to prepare children to assume adult roles. It is necessary for children to learn to function in settings that are less warm and protective than the home. It is reasonable to assume that in any society, perhaps in any institution, individual goals and social goals can at best only approach congruence, and that it is therefore important for children to begin learning to cope with socially generated disappointments. The schools would fail children and their parents dismally if the school experience were so disjoint from the community's social and economic life that graduates were unprepared to assume adult roles. With all this as a caveat, let us proceed.

Bowles and Gintis write:

> The educational system helps integrate youth into the economic system . . . through a structural correspondence between its social relations and those of production. The structure of social relations in education not only insures the student to the discipline of the work place, but develops the types of personal demeanor, modes of self-presentation, self-image, and social-class identifications which are the crucial elements of job adequacy. Specifically, the social relationships of education--the relationships between administrators and teachers, teachers and students, students and students, and students and their work--replicate the hierarchical division of labor. Hierarchical relations are reflected in the vertical authority lines from administrators to teachers to students. Alienated labor is reflected in the student's lack of control over his or her education, the alienation of the student from the curriculum content, and the motivation of school work through a system of grades and other external rewards . . . . Fragmentation in work is reflected in the institutionalized and often destructive competition among students through continual and ostensibly meritocratic ranking and evaluation. By attuning

> young people to a set of social relationships similar to those of the work place, schooling attempts to gear the development of personal needs to its requirements.[15]

This description is difficult to refute, except by pointing to relatively rare experimental or alternative schools. What Bowles and Gintis here describe can be supported by citing other observers and authorities, or simply by appealing to the actual reflected experiences of most educational practitioners. It can be added that it is not necessary to blame educators for their behavior within the system. The roles assigned to all people involved in education are largely structured by economic and social forces outside of education; thus, the Bowles and Gintis argument relative to the "structural correspondence" of schools to the work place.[16] It is a rare community where business and industrial leaders do not exert major influence--if not control--over social institutions.

Philip Jackson of the University of Chicago's School of Education observed that "most students soon learn that rewards are granted to those who lead a good life. And in school the good life consists, principally, of doing what the teachers says."[17] This ethic of docility and obedience corresponds with what is required in the work place of workers on the lowest rungs of the hierarchy. There are variances among schools in terms of the degree to which rule-following and docility are stressed. Typically, these values are more important in working class schools than in more well-to-do suburban schools.[18]

Teachers understand that they are rewarded for maintenance behaviors, for quietly doing their jobs, for "keeping school." One reason why school principals are not ordinarily highly creative or imaginative is that promotion from the ranks in most school systems is not based upon creativity or imagination, but rather upon compliance behaviors.

While this is somewhat impressionistic, it appears that the major impetus for change emanating from within the educational system comes from two sources. The first source is discontented teachers who are more concerned with improving the schools than with upgrading their own careers. The second source is the occasional school district superintendent and school board member, who by virtue of training and often a background outside the school system, are more creative than most. But even at this level, there is a commitment to the system, for the system has obviously been good to those who attain such positions.

Discussing the corporate sector, Bowles and Gintis note that "the lower levels in the hierarchy of the enterprise emphasize rule-following, middle levels, dependability, and the capacity to operate without direct and continuous supervision, while the higher levels stress the internalization of the norms of the enterprise."[19] Since the job of the schools is to allocate children to these hierarchically structured differentiated adult roles, it is not surprising that the school itself is organized in like fashion.

Not only are the schools organized hierarchically to reproduce the work place, but they also alienate both teachers and students, just as industrial work alienates the mass of working men and women.[20] In its report on Work in America, a task force of the Department of Health, Education, and Welfare notes that increased student and teacher autonomy and decreased reliance upon dominance-submission patterns of behavior would make schools a more rewarding place to be, just as the same changes in the corporate sector would make work more satisfying for workers.

> If the goals of education were maintaining curiosity, maintaining and building self-confidence, including a love of learning, and developing competence, education would be directly relevant to the major needs expressed by the workers. Some of these . . . are the opportunity to use one's skills and education to the full, to be reasonably autonomous in doing one's work, to have a sense of accomplishment, and to have the opportunity to learn while on the job.[21]

Not only are schools organized hierarchically, and not only do they alienate teachers and students, but they are also designed as testing grounds for competition. One could argue--and those who support a competition-based school system do--that it is necessary to prepare children for the reality of adult life in a society which is demonstrably competitive. But it could also be argued that this preparation of children for competition serves a more important goal--that of fragmentation, of dividing natural allies among themselves so as to assure their powerlessness. "Divide and conquer." As Henry observes: "Since all but the brightest children have the constant experience that others succeed at their expense they cannot but develop an inherent tendency to hate--to hate the success of others, to hate others who are successful, and to be determined to prevent it."[22] In discussing "badges of ability," which are gained through successful competition (largely in school), Sennett and Cobb note that "society injures human dignity in order to weaken people's ability to fight against the limits class imposes on their freedom"[23] "Through competition, success, and defeat in the classroom, students are reconciled to their social positions."[24]

But why is all of this necessary? Why must the schools impose upon children coming directly from the warmth of the family an impersonal hierarchical structure? Why must schools alienate both their employees and children from the work there is for them to do? Why must schools enforce a competition among children which serves principally to divide them one from the other when they would be far more effective--both as learners and citizens--if they were united? All these questions have the same answer. All this is necessary because the schools serve society, and because the needs of society are--in most cases--defined as the needs of the corporate ruling class. These needs are to assume first, that each new generation is properly socialized to accept the existing system; second, that each new generation is trained to fill the available adult roles in adequate numbers to assure an oversupply of labor (which keeps wages low); and third, through these first two needs, to assure the elite of continued profits and control.

According to Bowles and Gintis, "a major element in the integrative function of education is the legitimation of preexisting economic disparities."[25] They go on to point out that "the educational system legitimates economic inequality by providing an open, objective, and ostensibly meritocratic mechanism for assigning individuals to unequal economic positions." They conclude: "Of course the use of the educational system to legitimize inequality is not without its own problems." Ideologies and structures which serve to hide and preserve one form of injustice often provide the basis of an assault on another. The ideology of equal educational opportunity and meritocracy is precisely such a contradictory mechanism."[26]

III.

I have tried to show two ways in which work precedes or is preeminent over school. First, the young child comes to school for the first time knowing something (unreliable as that knowledge might be) about the world of work, which he

or she has learned from parents and television, but knowing little if anything about school. Thus, the school has a perfect opportunity to assist children to make meaningful connections between their lives as children and the potential inherent in their future lives as adults. Second, the schools have chosen to do this through a legitimating process of integrating the child into the extant society in an uncritical way. This results not so much from any ill will toward the vast majority of working class children who are simply being slotted for adult lives of powerlessness and alienated labor, but rather from the fact that schools themselves are structured so as to reproduce the corporate society which they serve.[27]

But what of the basic contradiction noted at the end of the preceding section? Getzels refers to what he calls dominant or "sacred" values of the society and their role for education. "The sacred creed has remained relatively stable, and democracy, individuality, equality, and human perfectability as ideas are as attractive now as they were 150 years ago."[28] I believe that most Americans would agree with Getzels. Most believe that these values are sacred and that they ought to inform our institutional social lives, many probably believe that they do. But the contradiction between those values and the experiences of people at work and their children at school is undeniable. That contradiction may, in fact, become a motive force leading to social change--if we seriously believe in the sacred values listed by Getzels.

It is important to remember, however, that educators are extremely limited in what they can do alone. Just as schools serve the society which nurtures them, so is it likely that change within the schools will come largely from the demands of society. It is equally important to remember that commitments to democracy and equality must be exercised in the larger society, for the leaders of that society will not stand idly by while believers in democracy and equality subvert their schools. The elite leaders of our society have a good thing going for them in universal free public education: an integrative system which legitimates the lack of democracy and equality in the economy by preparing children for differentiated roles of varying degrees of powerlessness in adult life. While the most successful efforts to change the economic system will undoubtedly be direct assaults on that system itself, there is still a role within education for those who believe in democracy and equality.

One feasible step which the schools could take--under the rubric of career education--would be to build upon a child's natural curiosity about adult life. The school should take a more active role in opening itself up to diverse elements in the community, exposing children to different people who play different roles. In line with this, children might be offered realistic information about career options--so that they do not close their own doors too soon or develop unrealistic views about those possibilities which actually exist in the economic system. By opening the schools to diverse elements of the community, it might also be possible to build a fairly broad base of support for educational change.

This is risky business. Educators must understand the political realities of their communities, and those committed to change must proceed with as full an understanding as possible of the potential consequence of their actions.[29]

A second feasible step would be for those who teach about careers--both vocational and career educators--to view their subject matter more broadly than is often the case today. "The failure of the technocratic-meritocratic viewpoint . . . lies in stressing the technical rather than the social relationships of production and in presenting the economic role of education largely as the production of job skills."[30] This, of course, reflects the major contradiction in

the process of production within our economy. As long as the schools do not fail students in the area of skills training, there is simply no valid argument to deny the possibility of preparing them also for the social relationships of production.

A third, and over-arching step, would be to use the contradictions between rhetoric and reality in order to foster the rhetoric that is supported by educators. That is, we might try to move the schools toward the goals with which they are popularly identified "by actually acting on the implicit and explicit articles of faith."[31]

Bowles and Gintis set the stage for a possible resolution of the contradictions:

> On the one hand, employers and other social elites have sought to use the schools for the legitimation of inequality through an ostensibly meritocratic and rational mechanism for allocating individuals to economic positions; they have sought to use the schools for the reproduction of profitable types of worker consciousness and behavior through a correspondence between the social relationships of education and those of economic life. On the other hand, parents, students, worker organizations, blacks, ethnic minorities, women, and others have sought to use schools for their own objectives: material security, culture, a more just distribution of economic reward, and a path of personal development conducive not to profits but to a fuller, happier life.[32]

Although he has little reason for hope, Greer has not given up the possibility that education can yet serve the purposes it claims to serve:

> There is no precedent to comfort the belief that there is hope for society through schools. But for people like myself who have for varied and complex reasons chosen to work in them, maximizing the tension between school rhetoric and school reality seems to be the only viable way to make public education a force for significant social change. Such tension could be the way the public school could contribute to a radical reassessment of social policies despite its continued subservience by and large to economic pressures and powerfully vested interests.[33]

If the purpose of public education is to maximize the potential of each child to become a fully functioning adult, replete with viable economic and political decision-making ability, then the schools will have to seek allies in the community to help bring this about. Even if the purpose of school were merely to train labor for the economic system, it would be necessary to concentrate greater efforts on the social relationships of work--unless we are content with serving no purpose greater than perpetuating inequality and increasing the profits of the few.

If we believe in the society's sacred values, which I believe most of us in education do, we must act upon that belief and affirm those values in action as well as in rhetoric.

It is well and good for us to meet from time to time--those of us in education and other walks of life in American society--to discuss the training of future generations of workers. But I would assert that such discussions must be

informed by a belief system which can be made operative through our joint efforts. It is for this purpose that I raise the issues of work and schooling here this morning, in the hope that we will view the worker as a citizen and not merely a cog in the industrial machinery of society.

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30. Bowles and Gintis. Op cit. Page 68.

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COST-EFFECTIVENESS OF WORK EXPERIENCE IN SECONDARY SCHOOLS*

Jacob J. Kaufman**

In 1975 the Institute for Research on Human Resources undertook a study to determine the costs and benefits associated with school-supervised work experience programs. This paper represents a preliminary statement on the results of this study. Two types of programs were included: cooperative programs, which are most often geared to vocational students who are placed in jobs which are directly related to their fields of study; and work study programs, which have the effect or intent of deterring dropouts. Students in work study programs hold jobs which may or may not be directly related to their fields of study. Data on students in these two types of programs were compared with data on students in conventional vocational programs who either had no jobs, or had part-time jobs which were not school supervised.

A cost-benefit analysis was also conducted which compared (a) expenditures per student in work experience programs with expenditures per student in regular vocational programs, and (b) the pre- and post-graduation wages of both groups. Information on the costs of work experience and vocational programs was provided by school records; information on wages was provided by students. It should be noted at the outset that work experience programs were found to be more costly than regular vocational education and that work experience graduates do not earn higher wages in the first two years after being graduated. From a narrow human capital perspective--which maintains that any benefits which accrue to students as a result of participation in work experience programs should show up in higher wages--the extra investment in work experience would not appear to be justified. Certain nonmonetary factors, however, reveal positive benefits to students involved in work experience programs.

Data were obtained through the cooperation of thirty-three high schools in fifteen school districts in the eastern half of the United States. In each of the school districts, urban and/or suburban and rural schools were included. Usable questionnaires were collected from 2,854 students who were enrolled in April and May of 1975. Questionnaires were obtained by mail from an additional 2,245 former students from the classes of 1972, 1973 and 1974.

The questionnaires provided data in six categories. These are:

1. The students' perceptions of influences on their choice of courses of study;
2. Relationships between occupational areas studied and jobs held;
3. Post-high school plans and experiences;
4. General knowledge of different occupations;
5. Students' satisfaction with their education; and
6. Measures of self-esteem.

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*This paper represents the preliminary results of a study conducted under a grant from the U.S. Office of Education. The views presented represent those of the writer and he assumes full responsibility for them. The persons involved in the study include Morgan V. Lewis, Daun E. McKee, D.L. Kaltreider, and Gerald P. Glyde. This paper not for quotation.

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Proponents of work experience programs claim that students who participate in them will receive benefits in some or all of these six categories. For example, virtually all theories of career development claim that young people need a period of occupational exploration before they can make realistic career decisions. Advocates of work experience programs assert that participation in such programs enables students to make more realistic career decisions. Students included in the study were asked a number of questions to assess the impact of various influences on the choice of a course of study. Overall, having a school-supervised job was associated with student reports of having more various and more helpful experiences of an exploratory nature which led to their choice of a vocational program (which is assumed to reflect career choice). These data suggest that students who have school-supervised jobs also have a higher level of career awareness on which to base decisions. In addition, holding a job while in school--either school-supervised or nonschool-supervised--seems to be associated with higher scores on a test of general knowledge of occupations.

That education should be relevant to the students' future experiences in the world of work in order to maximize the students' potential for success is another tenet of work experience education. The study found that students who had school-supervised jobs were more likely to have jobs that were related to their courses of study than students who had nonschool-supervised part-time jobs. Also, it appears, that the purposes of cooperative programs and the motivations of cooperative students tend to coincide, because co-op students reported that they had selected their courses of study to prepare for employment more frequently than any other group.

Females tended to report that their jobs were more related to their courses of study than did the males. Probably this is true because of the large number of females who were enrolled in office occupations obtained jobs in that field. Students who are enrolled in less skill-specific programs, like trade and industrial or distributive education, are less likely to acquire jobs that are highly related to their courses.

The advocates of work experience also tend to claim that this type of education can ease the transition from school to a full-time job. This contention, if not directly confirmed, is at least supported by the present study's findings. Among the males, more of the students in cooperative and work study programs planned to get jobs rather than to continue their formal education than did students who had part-time or no jobs. Moreover, they actually appear to fulfill these plans, since among the former students, more of the co-op students hold jobs after graduation. In addition, co-ops are more likely to receive on-the-job training from their employers than the other groups and to express more satisfaction with their education and, at least among females, with their jobs as well. These findings may indicate that students (at least co-op students) who have had school-supervised jobs do indeed find the transition from job to work easier, since they do not postpone getting a job in favor of further education, and since they are more likely to receive training from their employers which could make their working experiences easier and more fruitful.

Because this study was concerned not only with benefits which might be associated with work experience programs but also with costs (both monetary and nonmonetary) which might result from them, an effort was made to discover whether holding a job while in school seemed to limit participation in extracurricular activities. Since, however, the most striking incidence of participation in vocational clubs occurred among co-op students, they do not appear to bear any appreciable burdens in this area.

As for other effects of holding a job while in school, work study males tended to be most dissatisfied with their education and jobs, but they were also least likely to be truant. And although work study students of both sexes were most likely to think seriously about dropping out of school, they said they did not do so at least in part because they held jobs while they were in school. The work study programs in our sample thus appear to be reducing the number of dropouts.

Cooperative students seemed to have more favorable attitudes toward school overall than students with part-time or no jobs. These attitudes are in turn reflected in the lowered incidence of discipline problems such as truancy and suspension among students in work experience programs.

As for the claim that work experience education can increase a student's self-esteem, our measures failed to detect any differences in feelings of self-esteem between work experience and nonwork experience students. All of the students reported having felt "looked down on" by others at least sometimes, and work study students reported having this experience more often than the other groups. It should be emphasized, however, that work study students tended to respond more negatively to almost all of the questions than any of the other groups, and that work study programs are designed to deter the potential dropout, who can obviously be expected to express more negative attitudes toward school-related activities and programs than other students. Even so, as pointed out earlier, the work study programs in our sample do seem to succeed in keeping even this most negative group of dropout-prone students in school.

In addition to investigating the six areas outlined above, it was hypothesized that, as a result of the benefits that were expected to accrue to work experience students (cooperative students in particular), they would possess more "marketable" job skills and attitudes which would enable them to find better jobs than other students, or at least find comparable jobs.

In general, the study's results support the contention that a graduate's job qualifications are enhanced by cooperative work experience, because even though co-ops do not get higher paying jobs immediately after being graduated, they do acquire jobs within a shorter period of time than other students. Co-op and work study students were found to hold more skilled jobs while in school than students with nonschool-supervised jobs, and they are apt to transfer more of their in-school learning to those jobs. The co-op and work study students did not, however, earn higher starting wages in either their longest or their current jobs.

Co-op students do appear to make gains in the amounts of job stability and on-the-job training they receive. They also experience somewhat less unemployment than students in other groups. This may result from the placement function of cooperative programs, but for whatever reasons, co-ops assert that they benefit from their programs and do not suffer any individual costs as a result of their participation in cooperative, rather than regular vocational programs. That is, their extracurricular activities do not seem to be limited appreciably; they are not less, but more satisfied with their jobs, and although they do not earn more than other students, they do not earn less, either.

Therefore, although our study determined that adding one student to a work experience program costs about $125 more than if that student enrolled in a regular vocational program, and although the skills which work experience students gain are not reflected in higher wages, it should be pointed out that pecuniary measures do not fully capture the possible returns to any educational program. In important respects, education can be considered as consumption rather than investment, in which case satisfaction can be considered as one measure of its value or success. In addition, many personal and social benefits or costs cannot be identified through a strict human capital approach, especially within the limited time framework of this study, which observed costs over a one-year period and benefits over a two-year period. It is possible, too, that employers, rather than the students themselves, enjoyed the benefits of the students' work experience. The fact that these students were not immediately rewarded with higher wages may reflect certain labor market conditions.

Some economists believe that the United States' economy is characterized by a dual labor market--a primary market in which workers hold stable jobs with benefits and opportunities for advancement, and a secondary market in which workers hold "marginal," low-paying, dead-end jobs. In such a labor market, social and institutional forces combine with economic variables to determine which individuals obtain the more desirable primary jobs.

Doeringer and Piore write that "a considerable portion of the training necessary for the preferred jobs in the primary sector takes place not in schools or in classes, but on the job, and is essentially a process of 'socialization',...the acquisition of skills to perform particular tasks--what, in other words, is normally thought of as being acquired through education or formal training--really depends on the new employee's acceptance by the established group of workers..." They note further that "wages often seen unresponsive to changes in the supply and demand for labor, not because of trade unions or governmental wage relations, but because the sociological character of the training process and of the demands for equity at the work place discourage the type of competition among workers upon which competitive pay adjustments are predicated."[1]

If the analysis of these authors is correct, it can be seen that at least among co-op students, the additional on-the-job training they receive from their employers probably enhances their chances of eventually obtaining the "preferred jobs in the primary sector" which, it might be argued, usually are not obtained by any high school student very soon after graduation. In other words, the benefits of the socialization to the labor market which cooperative education provides may show up only after the students have been in the labor market for some time.

Work study students cannot claim so many employment-related advantages as co-ops, but it seems clear nevertheless that if socially desirable characteristics--such as possession of a high school diploma and general knowledge of jobs are important to employers in the primary sector, work study students are probably also "socialized" in the same way, though perhaps to a lesser degree, if only because participation in such programs keeps them in school and provides supervised work experience.

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[1]Peter B. Doeringer and Michael J. Piore, "Unemployment and the Dual Labor Market," Public Interest (Winter 1975), p. 72-73.

Over the long term, then, it may be that work experience can help to assure students of steady jobs with opportunities for advancement, a hypothesis which may find support in the finding that more of the co-op students remained with their high school employers after graduation in contrast with the students in the comparison groups which were inclined to change jobs.

Participation in a work experience program, especially in a cooperative program in which jobs are related to courses of study, probably enhances a student's employability, increases the "relevance" of education, reduces the drop-out rate, and yields greater satisfaction with both school and jobs. Immediately after being graduated, participants in such programs do not appear to earn higher wages, but over a longer period of time, they may have easier access to preferred jobs in the primary sector to the extent to which such jobs are available.

A PERSPECTIVE ON "ASSESSING VOCATIONAL EDUCATION RESEARCH AND DEVELOPMENT"

Susan W. Sherman*

This paper presents an overview of the report, "Assessing Vocational Education Research and Development," prepared by a Committee of the National Academy of Sciences. The Committee on Vocational Education Research and Development was formed in 1974 to perform two major tasks for the U.S. Office of Education: to review and assess the research and development (R&D) activities sponsored by the Office of Education under the authority of the Vocational Education Act of 1963 as amended in 1968, and to recommend changes in R&D policies and programs for the coming decade. The committee, which directed the writing of this report, was composed of professionals from diverse parts of the vocational education communities--universities, R&D institutions, national organizations, and state and local educational agencies--as well as behavioral and social scientists and a labor union official. The committee was chaired by Rupert N. Evans, Professor of Vocational Education at the University of Illinois.

The committee worked under the assumptions that vocational education is an important part of our educational system and that the purpose of research and development is to improve vocational education. Therefore, the committee makes recommendations that are to be constructive, to improve vocational education and its R&D.

The committee studied the federal, regional, and state administration of the vocational education R&D program and looked closely at the R&D products and their impact on vocational education programs in schools. To carry out its study, the committee and its staff gathered information from a wide variety of sources. They invited people representing more than 20 institutions and organizations to participate in hearings; interviewed federal, regional, and state researchers and administrators in several states; conducted a mail and telephone survey; commissioned 15 papers; and did an extensive literature review, which is presented in an appendix of the report.

The committee has found that the $250 million spent by the U.S. Office of Education on vocational education research and development during the last ten years has not had documented, widespread impact. Although the committee did not have adequate data and models for a rigorous evaluation, the available data do not indicate that vocational education research and development findings and products have had an influence on the knowledge, skills, or employability of large numbers of students. The committee believes that vocational education R&D shares with educational R&D a lack of both demonstrated impact on students and methods for rigorously measuring impact.

There are several major reasons for the limited impact of vocational education R&D:

- Priorities for R&D have been based more on political and bureaucratic considerations than on the results of previous research. Further, priorities have changed frequently so

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that research on any given issue has not been continued long enough to yield results. There has been virtually no R&D on some important problems while research on other problems has been continued beyond the point of fruitful work.

- Geographic restrictions on the distribution of R&D funds have resulted in the failure of the R&D program to adequately address problems of national or multistate scope and, sometimes, to fund the most qualified researchers.

- There has been a lack of coordination of the separately administered parts of the federal R&D program.

- Systematic and effective strategies have not been implemented for disseminating and encouraging utilization of R&D products and results.

- There has been no systematic effort to maximize the impact of the vocational education R&D program, and the few attempts to measure impact have met with only limited success. The committee believes that any program of applied R&D should emphasize maximizing and measuring impact.

- Most of the early expenditures were not used to produce usable R&D products but rather principally to develop R&D institutions and to train R&D personnel. This occurred because there were few trained researchers in vocational education and few social scientists knowledgeable about vocational education when substantial R&D funding began in 1965.

The committee has concluded that these deficiencies stem from a lack of coherent policy, administration, and leadership in the vocational education R&D program.

The committee believes that improvement in vocational education R&D requires, first and foremost, stable policy, leadership, and priorities. In this report, the committee recommends specific ways to build a well-integrated system of vocational education R&D in order to improve the quality and impact of vocational education. The recommended plan for evaluation and changes in the management and structure of the R&D program are necessary if vocational education is to be continually improved by its R&D.

Assessment of Vocational Education R&D

The committee attempted to assess the vocational education R&D program by reviewing large-scale evaluations, by searching for examples of successful projects, especially those with objective measures of impact, and by interviewing people involved in the R&D program.

The committee's assessment was hampered because the objectives of vocational education R&D have not been clearly defined. The committee also had difficulty finding evidence of impact, partly because there are insufficient data to allow for a comprehensive evaluation of vocational education R&D. Impact measures have often been subjective and difficult to validate and have failed to measure the long-term effects of R&D.

The committee's most difficult task was defining the measure of impact to use in assessing vocational education. The criterion used was a documented increase in the knowledge, skills, and employability of students.

The committee recommends that the Commissioner of Education ensure that USOE develop a comprehensive plan for evaluation of vocational education R&D. The objectives of R&D should be identified in conjunction with an examination of vocational education and its actual benefits. Evaluation criteria should be developed and a sample of projects should be extensively evaluated. Longitudinal studies of vocational students and their employers should be conducted, and those studies should include measures of students' job satisfaction, continuation of education, job mobility and wages, employes' satisfaction, and savings in training costs.

Because vocational education is relatively new and rapidly changing, the ongoing program of R&D should be supplemented by a panel of consultants appointed by the President and charged with studying all vocational education, including its R&D. This panel should be convened every five years to study vocational education and its R&D.

Administration of the Vocational Education R&D Program

The committee found it relatively easy to review the management and structure of the vocational education R&D program. The committee recommends many changes in the program's structure and management that are intended to result in an integrated R&D system. These changes are designed to meet several goals:

(1) to facilitate communication and coordination among parts of the R&D program and to define the roles and interrelationships among institutions involved in the program;

(2) to ensure that long-term problems, especially those of national and multistate scope, are studied;

(3) to ensure that the needs of groups such as minorities, women, the disadvantaged, the handicapped, and those who do not speak English as their first language are addressed;

(4) to minimize political and bureaucratic influences on R&D priorities and distribution of funds;

(5) to increase the coverage, quality, and utility of the information collection and retrieval system; and

(6) to increase the extent and quality of dissemination and utilization of R&D results.

These six goals are not ends in themselves, but are means that, in the committee's judgment, will lead to improved vocational education R&D and service to students. The committee's major recommendations on the administration of the R&D program are summarized here.

Consolidation of Parts of the Vocational Education R&D Program. Congress should consolidate research, development, and demonstration (Parts C, D, and I of the 1968 Vocational Education Amendments) in new legislation and in the

structure of the U.S. Office of Education. Research should receive at least 20 per cent of the funds appropriated.

Commissioner's Share of Funds. National or multistate problems should be addressed by the commissioner's share of funds (50 per cent) while states should continue to address state and local problems. The current geographic limitation on awards of the commissioner's share should be removed.

Procedures for Setting Priorities. The Commissioner of Education and state directors of vocational education should initiate a rigorous system of setting priorities, using continuing advisory groups and management information systems to determine long-range plans for R&D. More input from researchers should be considered in establishing priorities.

National Vocational Education R&D Centers. The Congress and the Commissioner of Education should ensure the continued existence of at least one national vocational education R&D center, which should receive long-term support for addressing national and regional problems, including those identified by the center(s). The center(s) should coordinate their work with the research activity within the states and should assist in disseminating research products and training R&D personnel.

Information Collection and Retrieval. The Department of Health, Education, and Welfare (HEW) should support a comprehensive and well-integrated information resource system linked to a dissemination network serving practitioners. A clearinghouse for vocational and technical education should include the abstracting and indexing functions of Abstracts of Instructional and Research Materials (AIM/ARM) and be well coordinated with other vocational education R&D activities. Every vocational education R&D project should be required to submit final reports to Educational Resources Information Center (ERIC) and AIM/ARM. Provision needs to be made for collecting and disseminating audiovisual materials.

Information Analysis. The Commissioner of Education should establish an information analysis program to transform R&D information on critical problems into appropriate forms for diverse user groups. This program should provide interpretations useful to each of those groups of users. Effective dissemination techniques should be developed and implemented for these products.

Utilization. A significant proportion of federal R&D funds should be designated for dissemination and utilization, under the direct responsibility of the Bureau of Occupational and Adult Education of USOE. In conjunction with the information resource system for vocational education, a comprehensive dissemination and utilization plan involving the national R&D center(s), research coordinating units, state and local education agencies, and other organizations should be developed. User training programs should be conducted to improve the flow of information from the resource system to practitioners.

Note on the Impact of the Report

Approximately four months before the committee's report was completed, the academy released portions of the draft to the Education and Labor Committee of the U.S. House of Representatives. As a result, two of the committee's recommendations were incorporated into the House bill: (1) that the three parts (C, D, and I) of the legislation and R&D program be consolidated, (2) that the commissioner's funds be distributed without geographic restrictions.

FUTURE LABOR SUPPLY FOR LOWER LEVEL OCCUPATIONS

Harold Wool*

Typically when educators and counselors meet, the last thing they talk about are those jobs people don't want--jobs at the bottom of the list. I use the term "jobs of last resort" when discussing those jobs people take when they cannot get anything else. Yet, any realistic assessment of the structure of jobs in the contemporary American labor market indicates that many millions of American workers still occupy jobs which do not fit into the preferred categories, and which, despite the march of technological progress, show no sign of disappearing or withering away in the near future.

In the recent past, the 1960s and early 1970s, some of the people who were watching manpower trends were impressed with the fact that for the first time we were seeing measurable progress in the job upgrading of black workers in this country. Blacks were moving out of the kinds of low-level jobs in which they were heavily concentrated in the past. Since the aggregate numbers of these jobs hadn't changed, somebody was taking their place. Logically the question arose as to who was taking these jobs. Moreover, looking ahead, other trends were underway which suggested that fewer workers would be willing to take these jobs in the future, under conditions of high overall employment.

I became intrigued by these developments and formulated some general questions about these trends, which included:

> How can we systematically identify these low-level jobs?
>
> What past changes have taken place in the composition of the labor force in these jobs?
>
> Is there any evidence that these changes affected the wage structure in these occupations, or that there were any significant labor shortages?
>
> What is the outlook for staffing these jobs in the coming decade?

First, how do we identify these jobs? The typical measure used by the economist is pay. The lower the pay, the less desirable the job, was the accepted rule. However, we all know that some jobs in the cultural field fall in this category, either because they offer intrinsic satisfaction, or because there are opportunities for a few to advance to great heights. Another measure which sociologists have used is to take polls of occupational prestige. This is done by asking people to rank different jobs. It can be done for a few jobs at a time, but you cannot do it for all the thousands of jobs in our economy; therefore, this procedure has its limitations. Finally, sociologists, such as Otis Duncan, have developed various socio-economic classification scales of occupations based on such factors as education and income.

For my purposes I was interested in what I called a "labor supply relevant" scaling of occupations, a measure which indicates what jobs are chosen by those workers with a relatively broad choice of jobs. The indicators used was based on the percentage of white high school graduates in various occupations, in a standardized age group, based on a detailed analyses of 1960 Census data. For summary purposes all of the Census occupations were grouped under five broad categories, as illustrated in Table 1.

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Table 1

Selected Occupations by Status Group

Occupations and Status Group	Numbers in Experienced Civilian Labor Force, 1960, (thousands)	Percentile Ranking
Group I		
Engineers	870	97.8
Teachers, Excluding College	1,682	87.0
Group II		
Bookkeepers	940	83.1
Police, Firefighters	426	59.3
Group III		
Farmers, Farm Managers, Unpaid Farm Workers	2,812	43.9
Carpenters	924	34.4
Group IV		
Auto Mechanics	705	32.4
Hospital Attendants	408	19.3
Operatives, Textile Apparel, Leather Industries	1,826	12.8
Group V		
Construction Laborers	776	6.1
Kitchen Workers	332	3.0
Private Household Workers, not elsewhere classified	1,310	0.3

The lowest category, Group V, includes farm and non-farm laborers, domestic workers, laundry workers, cooks, janitors and cleaners. These accounted for approximately eight million jobs in the period 1960-1970, or about 10 per cent of all jobs in the economy.

Category IV, a much larger group, includes most of the semiskilled manufacturing jobs, with the most poorly paid of these jobs, such as those in the textile and apparel industries, near the bottom of the list. Also included are the least skilled of the clerical jobs, such as shipping clerks; certain service jobs, such as hospital attendants and waiters, and some of the lower paid mechanic and crafts jobs.

Continuing up the ladder, Group III consists mainly of the skilled crafts jobs and of occupations such as farmers and farm proprietors. Group II includes administrative, clerical and managerial jobs, as well as police officers and firefighters. Finally, Group I consists of professional and technical workers.

Focusing on the lowest group we traced the history of those who have occupied these jobs in the past. Although our historical data base was limited, the pattern was quite clear. The jobs in the lowest category were filled by successive waves of immigrants--the least educated, the least literate, in turn the most disadvantaged. Typically the Irish predominated in jobs of this type before the Civil War. The southern and eastern Europeans moved into these jobs during the period of peak immigration of the late 1800s and early 1900s. And after World War I there was a large scale infusion of the blacks, as a replacement for the immigrants. Internal migration--the movement of rural whites as well as blacks, coming from the South and elsewhere, helped to fill these jobs in the cities during the post World War I era.

We have more detailed data on these shifts for the period 1960-1970. This decade was characterized, generally, by a favorable labor market climate, by increasing education, and a broadening in job opportunities for black workers. Additionally, there was a large influx of young people into the labor force from the post-World War II "baby boom" generation.

As compared to rapid overall employment growth, the number of workers in lower level (Group V) occupations grew by only 2 per cent during this period. During this ten-year period, however, there were very significant shifts in the composition of the work force in these Group V jobs. On a net basis, the number of blacks occupying these jobs declined by 630,000 or 20 per cent. These jobs also lost about 300,000 adult white men aged 25 or over. Thus, there was a net outflow of about 900,000 workers from these two groups. Replacements for these workers included about 800,000 young white men and women in age group 14 to 24 years. Almost all of the latter were at least high school graduates. In addition there was a net increase of about a quarter of a million additional adult white women in these jobs. Finally, although more difficult to measure, it is clear that there was also a significant influx of legal as well as illegal immigrants into these jobs, predominantly from nearby Latin American countries.

In examining the labor market effects of these shifts, we found evidence that reduced labor supply had contributed to sharp employment reductions in two of these occupations, domestic workers and farm laborers. We further analyzed that the influence of labor supply factors on wages in a number of other low level occupations, based on cross sectional data for nearly 70 metropolitan areas. The most interesting results were obtained for construction laborers. It was found that a key factor in explaining the variation of relative wages between the skilled and unskilled construction workers in these cities was the relative education of black workers compared with white workers. The closer to parity the black worker was to the white worker in terms of educational level the narrower the unskilled-skilled pay differential. Also, the higher the proportion of young people employed in these jobs, the greater the pay differential. Other significant factors affecting relative pay in this occupation were the extent of unionization, and general labor market conditions in each area.

Another aspect of the study was the projection of labor supply and demand for lower level jobs to 1985. Among the general labor force trends anticipated for this period, the most significant--for our purposes--is the reduction in the proportion of youth in the labor force, and a continued increase in the educational attainment of workers. Both of these factors were expected to reduce the labor supply for Group V-type jobs.

Our projections confirmed this hypothesis. In contrast to a potential "surplus" of college-trained people looking for higher level jobs, there is a possibility of "shortages" under full employment conditions, for many of the lower level jobs. This potential imbalance also relates to the blue collar versus white collar dilemma, that so many of the young people face today in their job choices. We can realistically expect that increasing numbers of college-trained personnel are likely to enter--at least temporarily--many of the blue collar fields, particularly those in the higher-paid skilled crafts.

Several other trends are also likely to develop if we have high levels of employment in the next decade. First, in some fields, such as domestic work, there will be a further decline in the ability to hire domestic workers' and we will do even more of our own household work. In the case of occupations such as construction laborers and hospital attendants, the more probable longer range outcome is for an increase in relative wages, accompanied by other efforts to make these jobs somewhat more attractive. Finally, in the case of low-wage industries such as apparel manufacturing, adjustment may take the form of continued geographical shifts to states or regions containing residual reserves of low-wage labor, or of increased reliance upon imports from low-wage countries.

In summary, the outlook points to the emergence of significant labor market strains, which can pose serious problems for some categories of workers and employers. At the same time, it can create a climate conducive to both private and public initiatives for reducing and upgrading the "jobs of last resort" in our society.

THE ROLE OF SUPPLY AND DEMAND FORCES IN THE CHANGING MARKET FOR COLLEGE GRADUATES

Richard B. Freeman*

Following a decade or more of relative economic boom, the job market for college graduates underwent a marked and widely publicized decline in the 1970s. The income of young graduates fell relative to that of their high school peers; proportionately fewer college men and women obtained professional jobs than in the past; relatively many recent bachelor's, masters; and doctorate graduates could not find positions in the fields in which they were trained; while the cost of college continued to rise rapidly. What factors caused the sharp turnaround in the college market in the 1970s? How important are the economic forces of supply and demand in observed changes? What is the long run significance of the market turnaround?

This paper examines these important questions regarding the changing relation between college education and economic success. The first section documents the dimensions of the changes in income, employment, and costs of college that characterize the market decline. It shows that the bulk of the change has occurred among the new entrants or young graduates of the 1970s, who are "on the active job market." The second section presents evidence that the turnaround? is not the result of cyclic developments, but rather, of more fundamental shifts in supply and demand. The principal cause of the decline appears to be the rapid increase in the supply of new graduates in the period, with changes in demand having an important but less significant effect on developments. Section three considers briefly the overall economic significance of the observed developments and likely future possibilities.

I. Systems of Change

The 1970s deterioration of the graduate job market and resultant decline in the economic rewards to higher education can be gauged in several different ways: through comparisons of income, of starting salaries, of the types of jobs held by graduates, and of rates of return to investments, which take account of the direct and foregone costs of education. In this section I consider briefly the dimensions of change in several of these indicators. Because economic changes are especially likely to show up more rapidly and significantly among new graduates, who are on the "active job market," than among older personnel who have relatively permanent positions, considerable attention is given to the position of the young.

The overall pattern of change in the relative income and occupation position of college graduates in the 1970s--the basic phenomenon to be explained--is examined in Tables 1 and 2.

Table 1 presents data on the ratio of the income of male college graduates to other workers from 1969, when the market for the highly educated appears to have peaked, to 1974 when it was substantially depressed. The income figures in lines 1-4 deal with fulltime year round workers while those for starting graduates in lines 5 and 6 compare actual wage rates to fulltime annual compensation.

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Table 1

College to High School Income Ratios for Male Workers
1969-1974

Income Ratios	1969	1974	%Δ
1. College Grad./ High School Grad	1.53	1.35	-11.8
2. College Grad./ High School Grad., 25-34	1.39	1.16	-16.5
3. College Starting Salaries[a]/ Average Annual Earnings[b]	1.24	1.09	-12.1
4. Doctorate Starting Salaries[c]/Average Annual Earnings	2.18	1.78	-18.3

[a]Estimated as weighted average of starting salaries from Endicott series using as weights .35 (engineering), .05 (accounting), .20 (business administration) .40 (sales).

[b]1974 is approximate. Calculated from percentage change in average hourly earnings from 1973 to 1974.

[c]Unweighted average of 8 Ph.D. fields

Source: U.S. Bureau of the Census, Current Population Reports, Series P-60 Consumer Income No. 75, p. 101, Table 47
No. 101, p. 116, Table 58.
College Placement Council, Men's Salary Survey (Bethlehem, Penn.), 1968-69, 1973-74).
F.W. Endicott, The Endicott Report: Trends in Employment of College Graduates, Northwestern University, 1948-74.
U.S. Department of Commerce, Survey of Current Business, national income editions.

The table reveals a sizeable decrease in the relative position of the highly educated during the period under study, especially among the young. From 1960 to 1974 the income of all male 4-year college graduates relative to that of high school graduates dropped from 1.53 to 1.35 while the relative income of 25-34-year-old graduates fell by 17 per cent, from 1.39 (1969) to 1.16 (1974), (line 2). Comparisons of the starting salaries of college workers and Ph.D.'s shows equally striking patterns of decline among those just beginning their careers (lines 3-4). In 1969 starting bachelor's men earned 24 per cent more than the average worker; in 1974 nine per cent more. The advantage of beginning Ph.D.'s fell by 18 per cent. More detailed analysis of the CPS data tapes confirm the concentration of the decline among the young graduates who constituted the margin of expansion in supply (Freeman, 1977a).

Table 2 reveals a comparable deterioration in the occupational distribution of college graduates, with those trained for academic careers having the greatest difficulty obtaining jobs in their specialties. In line 1, which gives the most comprehensive statistics on the employment of graduates, the proportion employed in the traditional occupational area of the college-educated, the professions, is seen to drop sharply, by 10 per cent among men and 13 per cent among women. Lines 2 and 3 turn to the employment problems of more limited groups, education majors and Ph.D.'s, for whom the 1960s were an especially good period and the 1970s the converse. In line 2, there is an extraordinarily large drop in the frequency with which education majors obtain teaching jobs; in line 3, there is a quadrupling in the fraction of Ph.D.'s seeking but lacking specific prospects for an appointment at the time of the NAS-NRC survey. Other data (not given in the table) corroborate the picture of a significant worsening in the "employment opportunities" for the college trained. Statistics from the BLS survey of the graduating class of 1972, for example show that only 46 per cent of the male bachelor's recipients and 65 per cent of the female graduates obtained professional jobs compared to 71 per cent and 81 per cent of similar graduates in the class of 1958 (Freeman, 1976, p. 20). Tabulations of the March 1969 and 1974 CPS data tapes reveal a large decline in the proportion of 25 to 34-year-old 4-year white male graduates working as professionals from 51 per cent in 1969 to 43 per cent in 1974. Over the same period the proportion employed as salesmen rose from 10.6 to 13.8 per cent and perhaps most striking, the fraction employed as craftsmen rose from 4.5 per cent to 7.6 per cent.

While the magnitude of the deterioration in employment opportunities depends on the measures and group considered, there was a widespread and quantitatively substantive worsening in opportunities in the period.

At the same time that the income and employment position of college graduates weakened in the 1970s, the direct cost of college continued to rise, reducing the rate of return to the investment. The basic factors that determine rates of return are summarized in Table 3, which contrasts the income of the young with the costs of college. To provide some historic perspective, the table covers a longer time period than Tables 1 and 2 and, for comparability of income over time, deals with the income of all rather than year-yound fulltime workers.

Three aspects of the change in the market in the 1970s deserve attention. First is the fact that the absolute real (as well as the relative differential) between young college and high school workers declined sharply in the period.

Table 2

Measures of the Employment Opportunities of College Workers
1969-1975

	1969	1975	%Δ
1. Proportion of College Workers in Professional Jobs			
Male	61	54	-7
Female	81	70	-11
2. Proportion of Education Graduates Obtaining Teaching Jobs	74	48	-26
3. Proportion of Ph.D.'s Seeking Appointments But Lacking Specific Prospects	6	26[a]	20

Source:

Line 1, U.S. Department of Labor, Educational Attainment of Workers March 1969 (Special Labor Force Report 125, Table I, p. A-28) and unnumbered preliminary report for March 1973, Table 5, p.6.

Line 2, National Education Association as reprinted in Scientific Manpower Commission, Manpower Comments. July-Aug. 1776 Vol. 13, No. 6, p. 7.

Line 3, R. Freeman, The Overeducated American, Academic Press, 1976, Table 8, p.91.

[a]1974

Table 3

Changes in the Relative Rewards to College
1949-1974

	(all $ in 1967 constant $)				%Δ
	1949	1961	1969	1974	1969-1974
1. Earnings of men 25-34 years old					
college graduate	5773	8334	9815	8350	-14.9
high school	4546	5979	7407	7267	-1.9
difference	1227	2355	2408	1083	-55.0
ratio	1.27	1.39	1.33	1.15	-13.5
2. Tuition and fees					
public	153	248	295	341	15.6
private	655	1011	1397	1550	11.0
3. Total cost/pupil	1182	1995[a]	2686	2988	11.2

SOURCES: Line 1, U.S. Bureau of the Census, Current Population Reports Consumer Income Series P-60 No. 92, Table 1 with ungrouped data adjusted by ratio of ungrouped means in 1967. No. 75, Tables 47, 58, and 101.

U.S. Dept. of Commerce, Trends in the Income of Families and Persons in the U.S., technical paper 8, Table 3.

1949 earnings from H.P. Miller, "Annual and Lifetime Income in Relation to Education 1939-1959, AER, (Dec. 1960) Table 1.

Line 2, 1969, 1974 from U.S. Office of Education, Projections of Educational Statistic to 1984-85, 1975 ed., p.106.
1961 from U.S. Office of Education, Projections of Educational Statistics to 1978-79, 1969 ed., Table 50, p. 107.
1949 from National Science Foundation, Statistical Handbook of Science and Education, (NSF 60-13), Figure 48, p. 51.

Line 3, U.S. Office of Education, Digest of Educational Statistics, 1975, Table 92, obtained by dividing current fund expenditures by respondent degree credit enrollment.

Deflator is from U.S. Department of Labor, Employment and Training Report of the President 1976, Table G-6, p. 362.

Table 4

Regression Estimates of the Effects of Cyclic, Time, and Post-1970 Change Factors on the College Income Premium and Probability of Obtaining Professional Jobs

Relative Incomes	Coefficients and Standard Errors				R^2
	constant	CYCLE	TIME	T70	
1. College Grad (4 or 4+ yrs.)/ High School 1956-1974[b]	.40	-.34 (.30)	.003 (.003)	-.016 (.008)	.33
2. College Grad (4 yrs.)/ High School 1956-1974[c,d]	.30	-.26 (-.26)	.005 (.002)	-.022 (.007)	.48
3. College Grad (4 or 4+ yrs.)/ High School, 25-34 yr. olds 1956-1974[a]	.16	-1.04 (.30)	.006 (.003)	-.033 (.008)	.71
4. College Grad (4 yrs.)/ 25-34, 1956-1974 [c,d]	.16	-.47 (.28)	.006 (.002)	-.038 (.018)	.75
5. College Starting Salaries/ Annual Compensation, All Workers 1947-1974	-.03	-.57 (.16)	.012 (.001)	-.047 (.005)	.90
6. Proportion of College Grads in Professional Jobs, Male 1952-1975[e]	-.58	-.40 (.09)	.004 (.001)	-.032 (.002)	.96
7. Proportion of College Grads in Professional Jobs, Female 1952-1975[e]	-.42	-.26 (.22)	.009 (.001)	-.040 (.005)	.86

[b] CYCLE estimated from regression of real GNP (RGNP) on time for 1947-1974:
RGNP = 8.02 + .037 TIME R^2 = .989
(.008)

[c] Omitted years 1957, 1959, 1960, 1962 due to lack of data. Estimated 1965 by applying percentabe change in median incomes to means given in census bulletin.

[d] Estimated college income in 1956 by regressing income for 4-year graduates on income for graduates with 4 or more years and using equation to extrapolate due to lack of data for 4-year graduates in 1956.

[e] Omitted years 1953-56, 1958, 1960-61 and 1963 due to lack of data.

Source: CYCLE estimated from regressions for 1947-75, yielding about the same coefficients as those in footnote b.
Incomes in lines 1-4 from U.S. Bureau of the Census, Current Population Reports, Series P-60, Consumer Income, No. 92, Table 1, p. 17, ungrouped data spliced for consistency with grouped data using 1967 overlap and Series P-60 Consumer Income Nos. 97 and 101. Line 5, F.W. Endicott, The Endicott Report, estimated as described in Table 1 and U.S. Department of Commerce, Survey of Current Business, national income editions.
lines 6,7 U.S. Bureau of Labor Statistics, Educational Attainment of Workers with 1952 and 1957 from U.S. Bureau of the Census, Current Population Reports, Series P-50, Nos. 49 and 78.

Whereas in 1969, 25-34-year-old college men earned $2408 more than similarly aged high school graduates; in 1974, their advantage was just $1083, a striking 55 per cent decline. Second, while some of the dramatic symptoms of change in the seventies result from comparisons with the extraordinarily good years of the 1960s, the 1949 and 1961 figures show that, among the young, the decline brought relative and absolute income differentials much below those in previous postwar years.* The advances of the college trained of the 1960s were undone and then some. Third and most important in terms of the return to the college investment, lines 2 and 3 of the table show sizeable increases in the real cost of college in the 1970s, which greatly raised the ratios of costs to potential future incomes. In 1969, tuition and fees at public institutions averaged just 12 per cent, and at private institutions, 58 per cent of the income differential between 25-34-year-old college and high school men. In 1974, as a result of 16 and 11 per cent increases in tuition and fees at the two types of institutions, respectively, and the decline in the income differential, the ratios of private direct cost to the differences rose to 31 per cent and 143 per cent. Similarly, total direct cost per pupil jumped from 10 per cent above the differential in incomes among 25-34-year-olds to nearly three times as large.

The way in chich these changes affect rates of return depend on assumptions about future income profiles. If the graduates of the 1970s are assumed to recoup some of the relative income losses of the period, the rate of return to the college investment will fall less than if their position remains relatively low. Extimates of changes in rates of return under diverse assumptions about future income profiles suggest declines on the order of two to four percentage points, (Freeman, 1976) which is quite large for this traditionally stable statistic.

In sum, the downturn in the college job market had substantial adverse effects on the income, employment and return to the college investment, with the young graduates of the period bearing the brunt of the change in the market. The meaning and potential persistence of the narrower advantage of college depends on the casual factors which produced the change and their possible future course, to which we turn next.

II. Causes of Change

This section examines three potential causes of the down turn of the college market in the 1970s: the cyclic state of the economy, which weakened after 1969, possibly reducing demand for new graduates in the period; and changes in demand due to the reduction in R & D spending and slower growth of college manpower intensive industries, including education and the federal government.

Table 4 examines the effect of the business cycle on the relative income of graduates and on their employment position. It relates the relevant income ratios and proportion of graduates employed as professionals to three variables. The first is CYCLE, the deviation of real gross national product from its trend level, which is a reasonably good measure of the overall state of the economy. If the

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*Because the 1949 figures in the table are from a different source from the other data, some of the difference in relative incomes with other years may be due to different surveying procedures. Even so, the ratios for the young in 1974 fall below those in 1949.

relative position of graduates deteriorates in recessions, CYCLE will obtain a positive coefficient and conversely if, in accord with traditional labor market studies of skill differences (Reader), the position of graduates improves relative to the less educated in downturns. The second variable in TIME, a trend variable over the entire post-World-Ward II period, which measures past long term changes in income ratios and is expected to obtain a positive or at least nonnegative coefficient in the regressions in view of the long run gains of graduates. The third variable T70 is a trend variable which begins in 1970 when the market for the highly educated turned down. Since the regressions contain two time variables, T70 represents deviations of the 1970s from past trends. It is expected to be negative and, to the extent that the developments treated in section I are not due to random fluctuations, significantly so.

The principal result of the calculations is that a negative coefficient is obtained on T70 in all cases, which implies that there was a downturn in the graduates market, cyclic factors held fixed. In accord with expectations, moreover, to be inversely rather than positively related to relative incomes and employment prospects, which makes it difficult to explain 1969-74 developments in terms of cyclic patterns of change.

Having established that the downturn in the college job market is not a cyclic (nor random) phenomenon, we turn to the supply and demand forces at work in the period. As a first step in evaluating the impact of supply and demand, let us examine the extent to which the schedules appear to have shifted in the period.

On the supply side, there was a marked increase in the flow of new graduates into the market and in the ratio of college to high school workers in the 1970s, which contrasts sharply with the slower growth in the previous decade. At the bachelor's level, while the number of men obtaining BA's rose, the number <u>on the job market</u> increased only modestly in the 1960s, as a result of the greater propensity to go on to graduate and professional studies. Estimates by Carter of the ratios of first-time male students in professional and graduate schools to bachelor's degrees show an increase in the proportion from 31 per cent in the late 1950s to 41 per cent in 1967, followed by a sharp drop to 33 per cent in 1973 (Table 5-7, p. 87). On the basis of these figures, the number of male BA's entering the job market increased by 2.6 per cent per annum in the 1959-67 period compared to 10 per cent from 1967 to 1973. Relative to the male civilian labor force, the number on the market goes from .34 per cent (1959) to .39 per cent (1967) to .64 per cent (1973).

Evidence on the educational attainment of workers from the Bureau of Labor Statistics confirm this picture of shifts in supply for the entire male work force and for the 25-34-year-olds of particular concern to this study. The BLS data show that, contrary to popular belief, there was essentially <u>no increase</u> in the number of college graduates relative to high school graduates in the 1960s and relatively little increase from as early as 1952, followed by an unpercedented jump in the 1970s. In 1957, for example, the ratio of all male college (4 years or more) to high school graduates was .30; in 1970, it was .32; similarly the ratio of 25-34-year-old college to high school graduates stood at .50 in 1962 and at .48 in 1970--indicative of essentially no change in the period. From 1970 to 1975, however, the two ratios shot up. The number of all college male workers relative to high school workers rose by 22 per cent to .39; the number of 25-34-year-old college workers relative to high school workers increased by 42 per cent, to .68! Supply shifts of this type could be expected, all else the same, to cause a major decline in the state of the market, of the type observed.

Estimates of shifts in demand are somewhat more difficult to make, as there is no well-defined index of demand for college graduates, much less for new entrants. Some of the available information on demand does, however, suggest that changes in relative demand contributed to the market downturn. R & D spending, which is important in the demand for scientific, engineering and other college graduate professions, dropped as a share of GNP, beginning in the late 1960s. The proportion of GNP spent on education leveled off in the 1970s. In federal public administration, where one in six male graduates has traditionally worked, there was no increase in employment from 1969 to 1974. If the major industries in the U.S. are classified into "college manpower intensive" defined as those which have relatively many graduates and "all other," (see Freeman, 1976, p. 64 for the precise categorization) the rate of increase in employment in the college intensive exceeded that in other sectors by 2.4 per cent per annum in the 1960-69 period compared to just 0.8 per cent in the 1969-74 period, suggesting that there was a deceleration in the shift in demand toward college-intensive employment.

More formally, fixed coefficient demand indices, which estimate the effect of shifts in the industrial composition of employment on the demand for workers with various skills, can be used to obtain rough measures of changes in demand for graduates throughout the post-war period. Such indices, which are analyzed in detail in Freeman (1977b), are calculated as the sum of weighted changes in employment among industries, using base-period manpower coefficients (the ratio of workers in the group to industry employment) as weights.* I have estimated two sets of such indices: one using 1960 Census of Population education by industry employment data from Industrial Characteristics (PC-2-7F), together with employment figures from the national income statistics, as reported in Freeman (1975); and a second, using the education by industry matrices in the U.S. Bureau of Labor Statistics Educational Attainment of Workers series, which provides up-to-date matrices, with accompanying industry employment. They offer a superior picture of demand. Until comparable industry figures are obtained historically, however, they are limited to the 1970s period.**

The two indices tell a similar story about shifts in the demand for college relative to high school graduates. According to the first set of demand indices, which cover the entire period, the demand for male bachelor's graduates increased by 1.3 per cent more per annum that the demand for high school graduates from 1959 to 1969 but then decelerated to a differential increase of just 0.7 per cent per annum from 1969 to 1973. In the second (BLS matrix) set, relative demand shifted in favor of the college-trained by just 0.6 per cent from 1969 to 1974 followed, however, by a much smaller decline in demand for college than high school men in the 1975 recession (-2.5 per cent vs. -4.0 per cent).

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*Let a_{ij} be the employment in education group i in industry j in the base year. Then the predicted shift induced is $\Sigma_j a_{ij} \Delta N_j$ where ΔN_j is the growth of employment in industry j.

**On-going research will carry these indices back to the 1950s.

Since both shift estimates indicate that the relative demand for graduates increased, albeit modestly, in the 1970s, a decline-in-demand explanation of the market turnaround can effectively be ruled out. Moreover, while the deceleration in demand may have contributed to the turnaround, the much larger increase in the growth of supply than decrease in the growth of demand indicated by the shift calculations suggest that to the extent that the changes are good measures of horizontal shifts, the major cause of the turnaround in the college market is the rapid increase in supply in the 1970s.*

As the indices are, however, imperfect, there is some value to estimating the relative impact of supply and demand with regression analysis and examining the contribution of the deceleration of demand in greater detail. The methodology for this calculation is relatively simple: we regress measures of the exonomic position of college graduates on supply and demand shift terms and then multiply the regression coefficient by the observed change in the shift terms.

Table 5 presents the basic regression results. In line 1 the ratio of college entrants' salaries to annual compensation is regressed on the demand index, the ratio of bachelor's graduates to the work force, and the CYCLE measure of the state of economy. In line 2 the income of 25-34-year-old male college graduates relative to that of 25-34-year-old male high school graduates is regressed on the relative number of college to high school workers in that age group, the relative demand index, and cyclic variable. In lines 3 and 4 the proportion of male and female college graduates employed as professionals is regressed on a different indicator of the demand of the professionals' share of the work force, the cyclic variable and the relative number of graduates. The professional share represents the professional jobs for which graduates and other workers compete.

The regressions show that much of the change in the relative income and employment position of graduates is reasonably well explained by the supply and demand variables. In the college starting salary/annual compensation (line 1) and the proportion of graduates employed as professionals computations (lines 3, 4), both the supply and demand indices obtain highly significant, correctly signed coefficients, with the demand index estimated to have a greater proportionate effect that the supply index. In the regression for the relative income of 25-34-year-old male graduates, however, the estimated impact of demand is modest and the coefficient has a large standard error; experiments with variants of this equation yielded even smaller coefficients on the demand term. The results for this variable are, accordingly, less reliable than those for other variables.

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*Note that when we measure the shift in demand in terms of the deceleration in the rate of growth, we are essentially relating the demand for new entrants to growth of demand as in an accelerator model. Since demand for new graduates will depend on replacement demand and the possible differential tasks performed by young and old workers as well as the rate of change in demand, this provides an overstatement of the potential role of demand shift forces.

Table 5

Regression Estimates of the Impact of Shifts in Supply and Demand on the Economic Position of College Graduates 1947-1975

	Constant	Supply	Demand	CYCLE[a]	R^2
1. Ratio of College Starting Salary to Annual Income, 1947-73	-3.43	-.17[b] (.02)	.64 (.05)	-.29 (.14)	.92
2. Income of 25-34-year-old college grads./ 25-34-year-old high school grads. 1956-74[c]	0.11	-.52 (.18)	.27 (.22)	-.57 (.42)	.50
3. Proportion of Male College Grads in Professional Jobs, 1952-1975[d]	-.30	-.67 (.04)	.77 (.04)	-.22 (.08)	.97
4. Proportion of Female College Grads in Professional Jobs 1952-1975[d]	.18	-.57 (.06)	.89 (.08)	.59 (.14)	.92

Source: Line 1, supply: male bachelors plus masters and doctorate degrees less the estimated first-year male graduate enrollments deflated by male civilian labor force;
demand: fixed coefficient index for college graduates with 4 years of college using education by industry ratings from 1960 Census of Population, Industrial Characteristics and national income statistics from Survey of Current Business (July editions). See Freeman (1975).
Line 2, supply: Ratio of male college to high school graduates, with college men including those with 4+ years from U.S. Bureau of Census, Current Population Reports Series P-60, various editions with 1956 estimated from U.S. Bureau of Labor Statistics, Educational Attainment of Workers, demand: fixed coefficient index for men with 4 or more years of college using 1960 Census of Population education by industry weights and employment from national income statistics through 1973. 1973-1974 change estimated form 1973 industry by education matrix of B.S; Educational Attainment of Workers, March 1973, Special Labor Force report 161 and employment data in the Educational Attainment of Workers, March 1974, Special Labor Force Report 176.
Lines 3,4 supply: proportion of college graduates in the work force; demand: proportion of professionals in the work force. Male figures used for men and female figures for women. From U.S. Bureau of Labor Statistics, Educational Attainment series with 1952 and 1957 from U.S. Bureau of the Census. Curent Population Reports series P-50 Nos. 49 and 78.

[a]CYCLE as defined in Table 4.

[b]Supply lagged one period.

[c]Omitted 1957, 1959, 1960, 1962 due to lack of data.

[d]Omitted 1953-56, 1958, 1960, 1961 and 1963 due to lack of data.

The estimated coefficients are used in Table 6 to evaluate the contribution of supply and demand shifts to the market turnaround. Column 1 records the logarithmic change in the dependent variables in the 1960s, and in the 1970s; Columns 2 and 3 give the change in the relevant demand or supply shift term; while Columns 4 and 5 present the estimated contributions of the factors, obtained by multiplying the relevant regression coefficient by the shift in supply or demand. To focus attention on the turnaround between the 1960s and 1970s, the table also gives the difference between the period for each factor.*

While there are some differences in the effect of supply and demand on the different market indicators, the calculations tell a reasonably consistent story about their relative importance in the observed market turnaround. Except for the proportion of male college graduates employed as professional, all of the results give a larger role to the acceleration in the growth of supply than to the deceleration in the growth of demand.

In line 1, where the increased growth on the supply index of .40 dwarfs the decreased growth in demand of 0.07, the larger estimated effect of the demand index reduces the differential impact but still leaves a dominant role for supply. According to the estimates, the acceleration in supply contributed .07 points to the turnaround compared to .04 points to the slower growth of relative demand. In line 2, which focuses on the relative income of 25-34-year-olds, the smaller estimated coefficient on demand reduces its contribution, so that the supply change dominates entirely. Similarly in line 4, where the slight increase in the rate of growth of demand implies that <u>all</u> of the decline in the proportion of female graduates employed as professionals is due to the growth of supply, though in certain fields such as teaching, demand shifts are surely important. Only in line 3, which focuses on the proportion of male graduates employed as professionals, does the demand shift variable contribute as much as the supply shift variable.

Overall, since supply matters substantially in all cases, the calculations suggest that the prime cause of the market turnaround was the extraordinary spurt in the supply of graduates. Still, the deceleration in the rate of growth of relative demand appears to have played some part in reducing the economic position of graduates.

III. <u>Implications</u>

If, as argued, the increase in the supply of graduates is the main cause of the sharp fall in the relative economic position of graduates, there is reason to believe that the bulk of the market decline will have taken place by the mid 1970s, and a reasonable chance that for entering bachelor's workers, at least, the market will improve in the 1980s. This is because the rate of increase in supply is expected to slacken in the 1980s, at least among 25-34-year-olds, while the number of bachelor's graduates is expected to fall, as a result of demographic developments. Formal forecasts of college starting salaries suggest, in fact, a marked increase in the 1980s, assuming no major shifts in demand (see Freeman, 1976, Chapter 3). Whether this projected improvement in the situation of new entrants will "spill over" to the graduating cohorts of the early and mid 1970s, however, is by no means clear. The effect of changes in the supply of new entrants on more experienced personnel depends on the tasks performed by the various age groups and elacticities of substitution for workers with different years of experience, about which we have at present relatively little knowldege.

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*The precise years differ due to differences in the coverage of the basic variables.

Table 6

Decomposition of the Impact of Shifts in Supply and Demand on the College Job Market 1960s compared to 1970s

	Estimated Logarithmic Change			Estimated Contribution to Market Decline of Change in	
	Dependent Variable	Demand Index	Supply Index	Demand	Supply
1. Ratio, college starting salary to annual income					
1960-69	.06	.10	.11[a]	.06	-.02
1969-73	-.12	.03	.51[a]	.02	-.09
Difference	-.18	-.07	.40	-.04	-.07
2. Ratio, income of 25-34-year-old college to high school graduates					
1958-60	.00	.15	.04	.04	-.02
1969-74	-.14	.06	.28	.02	-.15
Difference	-.14	-.09	-.24	-.02	-.13
3. Proportion of Male College Grads. Employed as Professionals					
1962-69	.03	.18	.14	.14	-.09
1969-75	-.11	.06	.26	.05	-.17
Difference	-.14	-.12	.12	-.09	-.08
4. Proportion of Female College Grads. Employed as Professionals					
1962-69	+.08	.06	.27	.05	-.04
1969-75	-.15	.08	.28	.07	-.16
Difference	-.23	.02	.21	.02	-.12

Source: Data as in Table 5.
Columns 4-5 estimated by multiplying Columns 2 and 3 be regression coefficients given in Table 5.

[a]Lagged one year, 1959-1968 and 1968-1972, as in the regressions.

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PROJECTIONS OF SCIENCE AND ENGINEERING PH.D. SUPPLY AND USE: A COMPARISON ON NSF AND BLS PUBLICATIONS

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Introduction

Preparing a set of projections of the expected values of socioeconomic variables at some future date is a thankless task. Thankless in that it consists, as it sometimes seems, in the amassing of large amounts of inadequate data, relating them in an imposed framework of assumptions that are felt to be unrealistic, using marginally appropriate statistical techniques, and resulting in a product which can be proved "right" only one way, but which can be wrong any number of ways. Perhaps equally thankless is the task of comparing two publications showing projections of the same set of variables without reflecting discredit on the professional capabilities of one or the other author--or perhaps both.

The release of the Bureau of Labor Statistics (BLS) Bulletin 1860, Ph.D. Manpower: Employment, Demand, and Supply, 1972-85, and the National Science Foundation Report NSF 75-301, Projections of Science and Engineering Doctorate Supply and Utilization, 1980 and 1985, provides the opportunity for attempting such a comparison. Undaunted by such difficulties, and only mildly deterred by the impossibility of an exact accounting reconciliation between the two sets of estimates, herewith is presented such a comparison, both qualitative and quantitative.

Background and General Assumptions

Both the BLS and the NSF projections start within a single broad framework of economic assumptions, essentially the same as those underlying BLS's projections published in The U.S. Economy in 1985. The assumptions underlying BLS's Ph.D. projections are summarized below:

- The institutional framework of the American economy will not change radically.
- Economic, social, technological, and scientific trends will continue, including values placed on work, education, income and leisure.
- Efforts to solve major domestic problems, such as air and water pollution, solid waste disposal, urban congestion, inadequate industrial safety, and energy shortages, may consume more productive resources.
- Fiscal, monetary, and manpower training and educational programs will achieve a satisfactory balance between unemployment and price stability, permitting achievement of the long-term economic growth rate.**

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**The projections assume a four per cent unemployment rate and a three per cent annual increase in the implicit price deflator for gross national product.

- The projections also assume that U.S. energy requirements will be roughly in line with those projected by the U.S. Department of the Interior in U.S. Energy Through the Year 2000, December 1970. This means major reliance on oil imports to close the energy supply-demand gap. However, curtailment of oil supplies from the Mideast in late 1973 raised questions regarding the use of imports to close the supply-demand gap over the next few years. It remains to be seen what implications higher oil prices may have for the long-term growth rate and for structural changes in the economy. The Bureau is studying the employment effects of alternative assumptions on energy...

NSF's underlying assumptions are that:

- The institutional framework of the economy will not change significantly within the projected period, and the role of the labor force will follow past trends.

- On the international scene, a detente between the major powers will have been reached by 1985, but continue guarded relationships will not allow significant reductions in defense expenditures.

- Fiscal and monetary policies, combined with socioeconomic policies, will progress toward achieving a balance between full employment and diminished inflation without interfering with the long-term economic growth rate, although mild economic cycles are to be expected.

- All levels of government will continue to deal with a wide variety of domestic problems, with State and local governments playing an increasing role in the operation of economic and social development programs. The role of science and technology is also expected to become more important to the operation of programs dealing with national, regional, and local problems.

- Past trends in education will continue--with two-year colleges increasing their share of undergraduates--and most graduate school enrollees entering directly or soon after receiving undergraduate degrees. The role of continuing or midcareer education, while expected to grow, is not expected to detract significantly from the traditional undergraduate and graduate education patterns, nor add significantly to the total number of students enrolled in colleges and universities.

Even given the similarity of the two sets of assumptions, it is quite possible to derive greatly different sets of projections of the same variables. It will be seen that a large portion of the differences between the BLS and NSF projections of Ph.D. supply and demand result from differences in other, more specific, assumptions and projections, such as the proportion of bachelor's degree recipients entering graduate school, the trend in pupil-teacher ratios, etc.

Supply of Ph.D.s in Science and Engineering

NSF's projected supply of Ph.D.s in the science and engineering fields is reported in Table 8 (page 11)[1] and a summary follows[2]:

Table 1

NSF Projections for Science/Engineering Doctorate Labor Force by Field of Degree, 1985 (Thousands)

Field	Employment
Total	374.9
Physical Science	85.2
Engineering	63.3
Mathematics	21.6
Life Sciences	92.1
Social Sciences	112.7

Source: Table 8

Although BLS did not publish a table reporting total supply in 1985, Table 2 shows the derivation of a total supply vector based on the components of change shown in various parts of the BLS report.

Table 2

Derivation of 1985 Total Supply Estimate Based on BLS Data (Thousands)

Field	1972 Employment	Deaths and Retirements, 1972-85	Ph.D. Graduates, 1972-85	Emigration, 1972-85	Immigration, 1972-85	Total Supply
Total	225.5	30.1	340.4	26.0	11.7	521.5
Physical Sciences	63.8	5.4	57.4	4.4	7.3	118.7
Engineering	31.0	1.2	53.9	4.0	.3	80.0
Mathematics	12.4	2.6	22.0	1.4	1.0	31.4
Life Sciences	54.5	9.0	100.2	9.6	1.6	157.7
Social Sciences	63.8	11.9	106.9	6.6	1.5	153.7

Sources: 1972 Employment, Table 5; Deaths and Retirements, Table 9; PH.D. Graduates; Emigration and Immigration, Table A-6

Table 3 shows the two sets of projections as well as 1972 employment levels and percentage changes. The difference between the two projections will be shown to be clearly rooted in differing assumptions. These include graduate school enrollments and degrees granted, although there are minor differences in the deaths and retirements and migration estimates. On page 14 of its report, BLS states that its supply projections for 1972-76 are based on current graduate school enrollments by field and the proportion of these historically resulting in doctorates. For the latter part of the projection period, the estimates are based on the assumption that the percentage of an age group getting the Ph.D. degree will continue to increase, but at a slower rate than in the past. The assumptions and methodology are the same as those used by the Office of Education in its work on projections.

Table 3

Comparison of NSF and BLS Projections of 1985 Total Supply of Science/Engineering Doctorates (Thousands)

Field	BLS 1972 Employment	BLS 1985 Supply	BLS Percentage Change	NSF 1972 Employment	NSF 1985 Supply	NSF Percentage Change
Total	225.5	521.3	131.2	206.2	374.9	81.8
Physical Sciences	63.8	118.7	86.1	60.6	85.2	40.6
Engineering	31.0	80.0	158.1	32.3	63.3	96.0
Mathematics	12.4	31.4	153.2	12.4	21.6	74.1
Life Sciences	54.5	137.7	152.7	54.0	92.1	70.6
Social Sciences	63.8	153.7	140.9	46.9	112.7	140.3

Sources: BLS 1972 Employment, Table 5, 1985 Supply, derived
NSF 1972 Employment, Table 5, 1985, Table 8

In contrast, the NSF study (p.32) assumes that the propensity of a bachelor's degree recipient to enter graduate study is expected to decline from 26.9 per cent in the 1972-73 academic year to 16.4 per cent in the 1984-85 year. Additionally, the proportion of graduate school entrants projected eventually to earn their doctorate declines from 25.5 per cent to 20.7 per cent in the same period. These declines are arrived at by double-weighting the trends of the last five years in deriving the prediction equation. The effects of the differing assumptions on the number of graduates by field is shown in Table 4. It should be noted that at the time BLS prepared its study, the available OE projections of enrollments were published in Projections of Educational Statistics to 1982-83. Since then OE has revised these projections significantly downward, having effects on both supply and utilization of PH.D.s. In other words, were BLS to repeat its study today, using the same methodology, its projections of both demand and supply would most likely be considerably closer to NSF's.

Table 4

Comparison of BLS and NSF Projections of Science/Engineering PH.D. Graduates by Field, 1972-85 (Thousands)

Field	BLS	NSF
Total	340.5	239.7
Physical Sciences	57.4	39.8
Engineering	53.9	40.3
Mathematics	22.0	13.3
Life Sciences	100.2	62.4
Social Sciences	106.9	83.9

Sources: BLS, Table A-6; NSF, Table 8

The calculation of deaths and retirements over the projection period also causes a discrepancy in the two estimates of supply. Although both reports claim to use BLS-recommended methodology[3] in computing these numbers, BLS estimates only about half the number of separations that NSF does. These estimates are compared in Table 5. It appears, however, that if BLS did, in fact, use its own methodology, its numbers would have been somewhat closer to NSF's. Table 6 shows these calculations for all Ph.D.s based on BLS data. The annual separation rate implicit in this methodology is about 1.1 per cent for the 1972-85 period, not the .89 per cent reported in the BLS publication. This difference amounts to about 6,700

Table 5

Comparison of BLS and NSF Projections of Science/Engineering Deaths and Retirements, 1972-85 (Thousands)

Field	BLS	NSF
Total	30.1	64.8
Physical Sciences	5.4	18.3
Engineering	1.2	8.7
Mathematics	2.6	3.1
Life Sciences	9.0	17.8
Social Sciences	11.9	16.9

Sources: BLS, Table 9; NSF, Table 8

Table 6

Calculation of Separation Rate for All Ph.D.s Based on BLS Data and Methodology

Age Cohort	1972 Employment	1972 Separation Rate	1972 Separations	1985 Employment	1985 Separation Rate	1985 Separations
Total	323,600		2,864	474,900		6,168
25-34	179,900	.0022	396	117,300	.00155	182
35-44	91,200	.0056	511	204,200	.00475	970
45-54	32,700	.0141	461	109,700	.01210	1,327
55-64	17,600	.0620	1,091	33,700	.05830	1,965
65+	2,200	.1840	405	10,000	.17240	1,724

$$\frac{\text{Average Annual Separations}}{\text{Average Annual Employment}} = \text{Average Annual Separation Rate} = \frac{4516}{399250} = 011 = 1.1\%$$

Sources: 1972 Employment, Table A-2; 1985 Employment, Table A-5; Separation Rates, TMN Supplement 4

additional separations for scientists and engineers in the 1972-85 period. It is possible that in its actual calculations BLS used age-specific rates other than those reported in TMN Supplement 4, or that the 10-year-age cohorts were broken into 5-year cohorts and these 5-year-age-specific rates were used. This latter factor would reduce the rates toward the levels reported by BLS only if the 10-year cohorts were generally skewed toward the younger 5-year-age groups.

A more serious discrepancy appears in the age distribution used by BLS in computing attrition rates. Data collected by NSF and reported in Characteristics of Doctoral Scientists and Engineers in the United States, 1973, Appendix B (Table B-5) does not show the extreme skew to the 25-34-year-age group reported for 1972 by BLS (see Table 6 of this paper).

The NSF-reported age distribution and the calculation of separation rates for employed science and engineering PH.D. holders are reported in Table 7 and indicate a separation rate of about 1.6 per cent annually. Use of this rate yields attrition estimates comparable to those reported by NSF (the differing years of the employment estimates should have little effect on this rate).

Demand for Ph.D.s in Science and Engineering

Although most of the difference in the supply and demand balance shown in the two reports is attributable to differing projections of supply, there still remain a number of differences in projections of demand. Table 8 shows the BLS and NSF estimates of the demand arising from employment growth, including enrichment or educational upgrading.

Table 7

Age Distribution of Employed Ph.D. Scientists and Engineers, and Calculation of Deaths and Retirements, 1973

Age Group	Total Employed	Separation Rate	Separations
Total	226,422		3,655
25-29	10,199	.0021	21
30-34	51,535	.0023	119
35-39	43,704	.0044	192
40-44	36,388	.0068	247
45-49	30,442	.0111	338
50-54	24,315	.0171	416
55-59	15,664	.0359	562
60-64	8,850	.0881	780
65 and over	5,325	.1840	980

Sources: Employment, Table B-5, Characteristics of Doctoral Scientists and Engineers in the United States, 1973, Appendix B; Separation Rates, TMN Supplement 4.

Table 8

Comparison of BLS and NSF Projections of Incremental Demand for Science/Engineering Ph.D.s 1972-85 (Thousands)

Field	BLS			NSF
	Total	Growth	Educational Upgrading	Total, Including Enrichment
Total	105.4	80.6	24.8	153.5
Physical Sciences	28.0	19.1	8.9	19.9
Engineering	28.1	22.6	5.5	29.3
Mathematics	7.4	5.3	2.1	8.7
Life Sciences	18.6	15.2	3.4	35.4
Social Sciences	23.3	18.4	4.9	60.2

Sources: BLS, Table 9; NSF, Table A-11

Both BLS and NSF work on the basis that demand for Ph.D.s in science and engineering comes from three areas of the economy: the academic sector, nonacademic R&D, and other science/engineering activities, such as production control, consulting, marketing and quality control. Only in the academic sector projections are the BLS and NSF assumptions set forth in a manner allowing a direct numeric adjustment to be made to attempt to bring the two sets of projections into balance. The BLS and NSF projections of academic employment of science and engineering Ph.D.s in 1972 and 1985 is shown in Table 9, along with the percentage change projected for that period.

Table 9

Comparison of BLS and NSF Actual 1972 and Projected 1985 Employment of Science/Engineering Ph.D.s in the Academic Sector[a] (Thousands)

Field	BLS			NSF		
	1972	1985	Per Cent Change	1972	1985	Per Cent Change
Total	138.3	185.6	34.2	126.0	157.0	24.6
Physical Sciences	30.6	37.0	20.9	29.0	24.0	-17.2
Engineering	12.7	18.0	41.7	13.0	13.0	--
Mathematics	9.7	15.1	55.7	10.0	12.0	20.0
Life Sciences	38.1	50.1	31.5	37.0	57.0	54.1
Social Sciences	47.2	65.4	38.6	37.0	51.0	37.8

[a]NSF 1972 and 1985 data are for four-year colleges and universities only, while BLS data for both years include two-year colleges.

Sources: BLS 1972 employment, Table 1; BLS 1985 projection, Table 8; NSF, Table 11

The differences in the two sets of projections for the academic sector appear to be due to widely varying projections of enrollments, pupil-teacher ratios, and enrichment (educational upgrading).

BLS on page 10 of its report states that OE projections of enrollments are used which indicate an enrollment increase of 5.6 per cent over 1972 levels by 1985. NSF, on the other hand, expects enrollments to peak in 1979 at a level about 500,000 over the 1972 figure of 6.5 million and then taper off to 6.1 million in 1985 (pp. 19 and 31), based on OE data contained in Projections of Educational Statistics.

Two different sources, and two differing projections, are used to convert enrollment estimates to faculty estimates. BLS (p.10) reports that OE statistics, indicating a gradual further decline in pupil-teacher ratios by 1985, were used in their projection. NSF (p.20) used ratios based on the 1973 Faculty Workload Workbook, prepared by the Colorado Commission on Higher Education based on a five-state survey, and held these ratios constant.

BLS, based on recent doctor-faculty ratios, projects that 65 per cent of four-year college faculty and nine per cent of two-year college faculty will have the Ph.D. degree in 1985, and calculates that, in order to reach these ratios, 71 per cent of new hires in the four-year colleges and 10 per cent of those in two-year colleges will have their doctoral degrees (p. 10). In contrast, NSF, based on 1969-1973 employment data, projects that 100 per cent of new hires in four-year colleges will hold the Ph.D. degree and the percentage of new hires with the degree hired by two-year colleges will increase from 7.2 to 20.3 in the 1972-85 period (pp. 20-21 and Table 3). If the BLS had used the same assumptions as NSF, their projections of science/engineering Ph.D. demand would have been in the range of 15-20,000 higher over the 1972-1985 period.

In the nonacademic research and development sector, it is not possible to compare directly the differences between the two sets of projections, as the BLS report contains no separate data on this employment. However, BLS does state (p.10) that two factors are involved in the demand generated by this sector: (1) the level of R&D activity (dollars expended) and (2) the nature of the R&D activity (the mix between research and development), since Ph.D.s are more likely to work in research. Further, BLS states that "The Ph.D. projections in this report are consistent with the level of R&D activity implied in the Bureau's economic projections to 1985." Discussions with BLS indicate that this implied level of R&D spending is around $39.6 billion in 1985 (in 1972 dollars).

NSF projects (pp. 21 and 34) that R&D expenditures in constant dollars will increase at a 1.4 per cent annual rate, while the expenditures per worker will increase at an 0.7 per cent annual rate, indicating a level of R&D spending in 1985 of 34.7 billion (1972 dollars). Further, NSF projects that the proportion of Ph.D.s employed in this sector will grow from 14.2 per cent in 1972 to 19.3 per cent in 1985 as the result of enrichment. BLS makes no explicit statement as to the extend of educational upgrading as a component of demand for this sector.

The results of these differing assumptions and projections on the estimates of employment requirements for Ph D.s in science and engineering is shown in Table 10. The most salient feature of the comparisons presented here is that BLS's projections exceed those of NSF's in all fields except the life sciences. In the academic sector, NSF's projected requirements exceed those of BLS by about 6,000 life science Ph.D.s in 1985 (this discrepancy would be slightly larger if

two-year college Ph.D.s were included in the NSF estimate reported in Table 10). In the nonacademic R&D and other science/engineering areas, NSF estimates (Table 11) a total life science Ph.D. employment requirement in 1985 approximately 5,000 greater than the total BLS estimates being employed in its three categories--industry and business, governments and nonprofit organizations (Table 8).

Table 10

Comparison of BLS and NSF Total Demand for Science/ Engineering Ph.D.s, 1985 (Thousands)

Field	BLS	NSF	Difference, BLS-NSF	Per Cent Difference, BLS/NSF
Total	330.8	293.0	37.8	12.9
Physical Sciences	91.7	76.0	15.7	20.7
Engineering	59.1	45.0	14.1	31.3
Mathematics	19.8	16.0	3.8	23.8
Life Sciences	73.1	85.0	-11.9	-14.0
Social Sciences	87.1	71.0	16.1	22.7

Sources: BLS, Table 8; NSF, Table 11

Another aspect of the difference in life science Ph.D. demand projections may be seen in examining the estimates of attrition and educational upgrading in the academic sector. Available data indicate that both Ph.D. and non-Ph.D. life scientists are substantially older than the members of the other specialty fields. If BLS applied its calculated attrition rate of .089 per cent for all Ph.D.s to the life scientist employment in academia (as it appears they did), it could lead to a serious underestimate of the demand arising from this cause. Rough calculations produce an estimate of about 6,000 more life science Ph.D.s needed in the 1972-85 period if NSF attrition and educational enrichment assumptions were used rather than BLS.

Supply-Demand Balance

Even given the differences in assumptions, data, and methodology between the two reports, they reach similar conclusions. Unless market forces exert even more of an effect than that implicit in NSF's model, there will be a significantly larger number of Ph.D. recipients in the science/engineering fields in the 1972-85 period than there will be jobs usually filled by Ph.D. recipients. Rather than outright unemployment, the most probable outlet for any such surplus will be either employment in nonscience/engineering fields, or employment in science/engineering fields. And these will be in positions not now held by Ph.D. recipients nor projected to be, on the basis of recent trends.

There are two ways of comparing BLS and NSF projections of the supply-demand balance. Table 11 compares the respective estimates of new supply and incremental demand while Table 12 compares total supply and total demand.

Table 11

Comparison of BLS and NSF Supply-Demand Balance, New Supply vs. Incremental Demand, 1972-85 (Thousands)

Field	BLS New Supply	BLS Incremental Demand	BLS Surplus No.	BLS Surplus %[a]	NSF New Supply	NSF Incremental Demand	NSF Surplus No.	NSF Surplus %[a]
Total	326.2	135.5	190.7	58.5	218.3	140.3	78.0	35.7
Physical Sciences	60.3	33.4	36.9	44.6	38.1	32.1	6.0	15.7
Engineering	50.3	29.3	21.0	41.7	38.0	19.7	18.3	48.2
Mathematics	21.6	10.0	11.6	53.7	11.9	6.2	5.7	47.9
Life Sciences	92.2	27.6	64.6	70.0	53.3	45.9	7.4	13.9
Social Sciences	101.8	35.2	66.6	65.4	77.0	36.4	40.6	52.7

[a]Per Cent of new supply

Sources: NSF New Supply, Table 8; Incremental Demand, Table A-11;
BLS New Supply, Table 11; Incremental Demand, Table 9

Again, the most obvious point about these tables is the discrepancy in the estimates for life sciences. The reader is referred to the section on demand for a discussion of these discrepancies.

Table 12

Comparison of BLS and NSF Supply-Demand Balance, Total Supply vs. Total Demand, 1985 (Thousands)

Field	BLS Total Supply	BLS Total Demand	BLS Surplus No.	BLS Surplus %[a]	NSF Total Supply	NSF Total Demand	NSF Surplus No.	NSF Surplus %[a]
Total	521.3	330.8	190.5	36.5	374.9	293.0	81.9	21.8
Physical Sciences	118.7	91.7	27.0	22.7	85.2	76.0	9.2	10.8
Engineering	80.0	59.1	20.9	26.1	63.3	45.0	18.3	28.9
Mathematics	31.4	19.8	11.6	36.9	21.6	16.0	5.6	25.9
Life Sciences	137.7	73.1	64.6	46.9	92.1	85.0	7.1	7.7
Social Sciences	153.7	87.1	66.6	43.3	112.7	71.0	41.7	37.0

[a]Per cent of total supply

Sources: BLS Supply, Table 2, this paper; BLS Demand, Table 8;
NSF Supply, Table 8; Demand, Table 11

FOOTNOTES

1. Unless otherwise specified, all page and table references are to the respective NSF and BLS reports, Projections of Science and Engineering Doctorate Supply and Utilization, 1980 and 1985 and Ph.D. Manpower: Employment, Demand, and Supply, 1972-85.

2. Unless otherwise specified, all data from the NSF report are from the projections generated for the Probable Model.

3. See Tomorrow's Manpower Needs, Supplement No. 4: Estimating Occupational Separations From the Labor Force for States (TMN Supplement 4).

HOW USEFUL IN EMPLOYMENT IS COLLEGE EDUCATION?

Jean G. Kessler*

It was gratifying to be invited back this year to report further on the research which the College Placement Council and its related organization, the CPC Foundation, have been funding in the area of career plans and employment outcomes of college graduates. Before I start, I will file the same disclaimer as I did at last year's symposium: I am not a researcher, although I have been very involved with the research projects being reported. The principal investigators are unavailable for geographical reasons--one being in Italy and the other in California. However, I will try to do their work justice, although I may not be able to respond to questions about certain technical aspects of the research.

When completed, this particular series of studies will track the 1961 freshman class from its entry into college up through 1974, a period of 13 years, tracing the changes in career plans, as well as the links between major fields of study, career choice, and employment outcomes, covering as many as 9 years of actual work experience. Data were drawn from four follow-up surveys. In each case, only those students--or graduates--were retained who had answered all of the previous questionnaires. Additionally, for most of the 1971 and 1974 analyses, only those were included who had received a baccalaureate but not a higher degree.

This continuing study of the same cohort has provided unusual insight into the career decision-making process and into the relationship of education to employment actualization.

For those of you who are interested in the earlier findings, detailed reports are still available and samples are on the display table.

In today's session we will be concentrating on the findings of the most recent survey conducted in 1975 and funded jointly by the CPC Foundation and the National Institute of Education. The purpose was to determine how the graduates from the 1961 freshman cohort have utilized their education in employment, how useful it has been to them, and what recommendations they would make to help future generations prepare for employment. The area of job satisfaction was also included to identify the types of graduates satisfied with their employment and the factors which contribute to this satisfaction. In this survey, the CPC Foundation, for the first time, did not fund secondary analyses of data collected for some other study but rather funded the actual collection of data, with the questionnaire developed specifically to answer the areas being questioned by the researchers.

People hold various beliefs about the primary purpose of education. Some believe that education should provide men and women with general knowledge, the ability to think clearly, or the capacity to establish life goals. Others believe that education is wasted for the individual if it does not lead to increased earning power or job satisfaction, and for society if it does not lead to increased productivity or is not used on the job.

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Regardless of one's view about the primary purpose of education, the evidence of growing unemployment and underemployment of college graduates has led to widespread concern and makes it difficult to dispute the need for greater links between academia and the world of work and for making education more useful for careers. But what is useful education for careers? Most previous studies of the usefulness or value of college education for careers have selected a particular indicator and compared groups with various levels of education, a method that permitted broad conclusions about the overall "value added" of college attendance. Economists have long sought to determine the rate of return on a college education by assessing the differential between the earnings of high school and college graduates and the extent to which this differential depends on factors other than education, such as ability and motivation.

The CPC Foundation study took a different approach from previous assessments. It was designed as a means of providing a national forum for graduates to express their own views on the ways in which their college education contributed to their long-run development. Although the survey focused on education-work relationships, it also tapped experiences and opinions on a wide range of uses and benefits of college education, since individuals may benefit in many ways that are not work-related; for example, through intellectual development and preparation for life.

The survey was conducted between November 1974 and March 1975 with 12,009 college graduates who entered college in 1961 and had received a bachelor's but no higher degree. Response rate was 61 per cent of the entire mailing and 72 per cent of those whose questionnaires were delivered.

The analyses were further limited to those who still held only a bachelor's degree and were working full-time in 1974-75. Fifteen per cent had received an advanced degree and 31 per cent were not working full-time. The analyses, then, are based on the responses of 3,077 men and 1,061 women, a total of 4,138.

Of these respondents, only 17 per cent of the men and 31 per cent of the women had chosen their present careers before entering college. In fact, half of the women and nearly two-thirds of the men chose their present occupation after they completed their college education. Thus, while in college, the majority were not preparing specifically for their present work. For example, 38 per cent ended up in business careers (business administration, sales, accounting, office work), although less than one in five majored in business.

Previous studies have indicated that some respondents have had difficulty responding to the question "What was your college major?", either because they had combined or interdisciplinary majors, or for some other reason. Therefore, we asked for the area in which respondents had taken the most courses. This area was used in the analyses of a proxy for college majors.

Approximately one-third had majored in fields classified as liberally oriented, that is, English, other arts and humanities, and social sciences. Another third had majored in vocationally oriented fields--business, education, and engineering--and one-fourth in scientifically oriented fields--economics, natural sciences, and mathematics. The remaining 7 per cent gave their major as "other" and could not be classified. Fifty per cent of the women majored in liberally oriented fields and 21 per cent in education. Substantially more men than women majored in the various scientifically oriented fields, as well as in business and engineering.

While many occupations are represented, approximately one-fifth of the respondents were teachers and one-fifth business administrators. Occupational categories with between 5 per cent and 10 per cent of respondents were sales person, engineer, scientist, office worker, and accountant.

Business firms employed 28 per cent and heavy industry 25 per cent of the respondents. Other major employers were education (22%) and government (10%), with the remaining 15 per cent divided among military, human service organizations, and various other settings.

About two-thirds of the men had policy- or decision-making responsibility and considered their job professional. Three-fourths of the women considered their jobs professional, but less than half had policy- or decision-making responsibility, a finding influenced by the large proportion of women teachers who considered themselves professional but without policy- or decision-making responsibility.

Although two-thirds of the graduates felt their skills were not fully utilized, this finding, by itself, does not necessarily mean that such a large proportion are underemployed. The respondents may simply have meant that they are still developing their careers or are capable of greater responsibility.

Responses to the various indicators of job satisfaction depicted mixed feelings about work. The majority are satisfied with their career progress and status or prestige, and approximately two-thirds want to remain with their present employer. They are less satisfied with their prospects for advancement and the "fit" between their job and their long-range goals. This is particularly true for women, less than half of whom think their job fits their goals. Moreover, two-thirds of women respondents think they are underpaid compared with others with the same job level and same employer, as well as others with the same job level and other employers. Only 28 per cent of the women consider themselves well paid compared with other baccalaureates.

The perceptions of these women are consistent with the reality of their salary situation relative to men. Among respondents, 35 per cent of the women earned less than $10,000; just 8 per cent of the men reported such low salaries. Salaries of $20,000 were reported by 30 per cent of the men respondents but by just 5 per cent of the women.

Nevertheless, in overall assessment of job satisfaction, women are about as satisfied as men. Over half of both sexes are "very satisfied," while just 4 per cent of men and 5 per cent women are "not at all satisfied." This finding regarding women was the case for the 1961 freshman cohort; more recent women graduates may not be as complacent about status and salary.

From the college graduates themselves, baccalaureate education in the United States received high marks for usefulness in two areas: providing general knowledge and credentialing. Three-fourths found their college education very useful, and almost none found it totally useless, in increasing general knowledge. "Increasing the chances of finding a good job" (or "credentialing") was seen as the second most useful, aspect of college, with 69 per cent saying "very useful" and only 5 per cent saying "not at all useful."

Evidently, graduates think the degree itself is more helpful in securing employment than a skill learned in college since only 42 per cent rated their education very useful in providing a helpful skill and 29 per cent found it not at all helpful. Further, only 38 per cent felt their education was very useful in providing knowledge and skills for their current job, 43 per cent found it very useful in developing their ability to think clearly, while barely more than one-fifth thought it very useful for increasing leadership ability and helpful in the choice of life goals. While these ratings are middling, rather than altogether negative, the findings do suggest a need for improvement in these areas, if they are desired outcomes of college attendance.

Since some areas of study are more vocationally oriented than others, one might assume that persons who majored in these fields were more likely to find their education useful in careers. And, indeed, this was the case.

Persons with vocationally oriented majors were twice as likely as those with liberal education orientations to rate their education very useful in teaching skills helpful in getting the first job, and they were also more likely to use their college education in their present work. Only about one in four liberal education majors found education very useful in imparting the knowledge and skills used in the present job. Even the more general dimension of career usefulness, "it increased my chances of finding a good job," applied much more to graduates in vocationally oriented fields than to graduates in liberal education. On these three specifically career-related dimensions, persons who majored in scientifically oriented areas represented a midpoint on the continuum, but were somewhat closer in their rating to graduates in vocational than in liberal education fields.

On other dimensions of usefulness, which may serve broader purposes than career-related goals, the differences between majors are much less striking, seemingly refuting the argument that those who concentrate in vocationally oriented fields miss out on some of the general education benefits. College education was reported as very useful for increasing general knowledge according to 78 per cent of those in liberal education fields, 73 per cent in scientifically oriented fields, and 68 per cent in vocationally oriented fields. It was rated about equal across fields on increasing ability to think clearly. Moreover, college education was not rated particularly useful in developing leadership ability or in helping people choose life goals, regardless of the orientation.

Not only are liberal education fields of study less likely to be useful in careers, they are also not much more useful than vocationally oriented fields for intellectual development--at least from the perspective of the respondents.

These findings do not mean that persons who major in arts and humanities or social sciences find that their education has been useless. First, the survey did not tap all the possible ways in which education can be useful to people. Second, the ratings on indicators of usefulness were rarely negative; the primary distinction was between a high and moderate degree of usefulness. Indeed, many respondents recommended certain liberal arts courses as valuable preparation for their jobs.

The findings do indicate that vocationally oriented majors actually may provide a broader, more general education for work and life than does today's liberal education. The question is whether vocationally oriented majors provide a broader education than traditionally believed or whether liberally oriented majors are increasingly yielding a narrower one.

As expected, college education provided more job-related knowledge for some occupational groups than for others. "Very useful" ratings on teaching knowledge and skills used in the current job were given by 82 per cent of allied health workers, 67 per cent of educators, 62 per cent of accountants, and 56 per cent of engineers, but by just 25 per cent of administrators, 17 per cent of office workers, 16 per cent of sales personnel, and 14 per cent of miscellaneous non-professional occupations.

Over the years, the effects of institutional characteristics have been a much debated issue. The respondents to this survey who graduated from what may be considered the more "elite" institutions were more likely than others to consider their college education useful for intellectual development: in this study, defined as increasing general knowledge and ability to think clearly. On the other hand, they were less likely than others to consider it useful in helping to choose life goals, developing leadership, building work-related skills and competencies, and improving career prospects. It is possible that the findings may reflect the fact that the more selective or "elite" institutions tend to be more theoretical, whereas less selective institutions tend to be more practical in their approach.

Graduates were also asked how often they use in their work the content of courses in their major, their minor, and other fields. The findings supported the conventional wisdom to the extent that looking at major and occupational titles will reveal something about the use of education in work, but what it reveals is only approximate at best. Large proportions of business majors who became accountants or administrators, natural science majors who became allied health workers, engineering majors who became engineers, and education majors who became teachers used their major almost always or frequently. However, 40 per cent of business majors who became administrators and 37 per cent of engineering majors who became engineers did not make frequent use of their majors.

Perhaps even more of a challenge to the conventional wisdom was the finding that 47 per cent of English majors employed as business administrators, compared with 32 per cent of economics majors and just 26 per cent of engineering majors in the same occupation, frequently used their field content. Yet, employers often prefer economics or engineering majors to English majors in filling entry-level administrative slots. Administrators who majored in English are probably using their communications and analytical skills rather than their knowledge of Shakespeare.

Regardless of major, the link between education and occupation was relatively weak for office workers, sales personnel, and those in occupations classified as "other." However, teachers with a variety of educational backgrounds used their major often. Indeed, for social science and mathematics graduates, teaching was the only occupational outlet that made substantial use of their training at the baccalaureate level since the Ph.D. is usually required for full professional status in other social science or mathematics jobs.

With the generalized use of occupational titles as descriptors for jobs, it is perhaps insufficiently recognized that persons with a particular occupational title may perform a wide range of activities requiring a wide range of skills.

An examination of work activities performed by graduates showed that many of these activities are cross-occupational, that is, they are performed in a wide variety of jobs.

The majority of respondents, however, did not feel that college education prepared them to perform these activities. Less than one-third reported that their college education prepared them for the activities associated with a traditional liberal arts and science education--writing and mathematical work.

Persons involved in various business activities were especially unlikely to cite college as a learning ground. This situation is probably exacerbated by the fact that many graduates with various majors are eventually employed in jobs requiring business skills.

For the respondents, much job skill acquisition took place after college. Very few, regardless of occupation or major, felt that college was sufficient training for their job. The proportions citing on-the-job training ranged from a low of 72 per cent for those in education to a high of 93 per cent for accountants. Majorities in all occupational categories except accounting and allied health also reported: "I picked it up by myself."

Since college education makes only a limited contribution toward building the necessary skills, the respondents were asked to suggest courses that would be most beneficial in preparing for their <u>own</u> jobs.

Among all graduates in all occupations, the most frequently recommended study areas were business administration (45%), English (32%), and psychology (31%). Next in general usefulness were areas that develop ability to handle numbers: economics (28%), accounting (27%), and mathematics (23%). These recommendations are consistent with the evidence that many jobs across occupations require administration, communications, and interpersonal skills.

As noted earlier, overall, nearly six out of ten respondents were very satisfied and only 4 per cent were not at all satisfied with their jobs. Among the more satisfied groups were business administrators, sales personnel, teachers, and allied health workers. Lower status white-collar workers were the least satisfied of the occupational groups studied, but only 11 per cent in this group expressed total dissatisfaction.

The findings contradicted the popular belief that entering a job related to one's major is important for job satisfaction. Respondents who viewed their job as closely related to their major were no more satisfied than others.

One of the most important factors contributing to job satisfaction was the feeling that one's skills are being fully utilized. This does not mean that every skill must be used but rather having the opportunity to use the particular skills or competencies one values most. These skills or competencies may or may not have been acquired in college.

In addition it was also found that early choice and preparation for a specific career does not enhance job satisfaction. Late choosers were just as satisfied as early choosers. Further, those who followed an unconventional career-development path often were more satisfied than those who followed a dominant or "typical" pattern. Another finding that refutes conventional belief has to do with sex stereotyping. People usually associate men with business occupations and women with teaching occupations. However, men teachers were found to be as satisfied as women teachers and women business administrators were found to be significantly more satisfied than men in this occupation.

To summarize, the finding that 38 per cent of respondents rate college "very useful" in providing knowledge and skills used in the current job and 12 per cent rate it "not at all useful" can be interpreted both positively and negatively. On the one hand, it indicates greater satisfaction than dissatisfaction; on the other hand, it indicates waste if nearly two-thirds do not find their education very useful. An indisputable interpretation is that considerable room for improvement exists. Combined with the other ratings of usefulness, the data tend to conform with the stereotypic picture of students acquiring a great deal of general knowledge in a somewhat isolated academic environment, leaving college with fuzzy goals and little intellectual preparation for autonomous thinking, and as far as careers go, benefitting primarily from the diploma.

By imparting general knowledge, colleges are preparing people for all aspects of life, including careers. However, general knowledge often does not prepare people for work.

Although most graduates make some use in their work of their college courses, the potential work value of courses outside the major may not be sufficiently recognized or tapped.

The relation between particular curricular areas and occupations should be reconsidered. Persons with a particular occupational title may perform a wide range of activities requiring a wide range of skills. However, the majority of college graduates, according to our study, do not think that college education prepares them to perform these activities.

What studies are useful? The courses recommended most frequently are business administration, English, and psychology. Economics, accounting, and mathematics follow in order of usefulness. If these study areas were to become part of a general career-education core, with variations depending on broad vocational interests, they would provide the skills required for many jobs. The most generally useful curriculum would build capabilities in communications, administration, interpersonal relations, and numerical operations.

Overall, the findings of this survey seem to render moot the current arguments supporting either "vocationalism" or "humanism." Indeed, these recent college graduates, actually engaged in the world of work, find substantial vocational value in humanistic curricula. They also find general applicability or basic usefulness in business curricula that educators label vocational.

The assessment of their education by these graduates suggests a qualified endorsement. It also suggests that the nation's colleges re-examine the "mix" being offered to their successors in the classrooms, so that the next generation to graduate into a world of uncertainties and change may do so with its fundamentals firm and its adaptability a foregone conclusion.

STRATEGIES AND PROCEDURES FOR USING OCCUPATIONAL INFORMATION AT A CAREER DEVELOPMENT AND PLACEMENT CENTER

James Slick*
Richard G. Swails**

The process of choice as it relates to career planning has never been easy, but for today's young person it is a problem of staggering proportions. The nomenclature and complexity of today's job titles alone reflect significant changes. Changes that exist in the type of work available and the number of possible job choices.

Today's youth are confronted with a number of mixed messages which further add to their confusion. For a number of years the message has been that the path to a "good" job is through higher education. Yet it has also been estimated that approximately 80 per cent of existing jobs in the United States do not require a college education.

Many students who have taken our advice and who have diligently pursued their college program are now confronted with a very competitive college employment market. Many college graduates are now learning what the term "underemployment" really means. So it is no wonder that we are beginning to see growing numbers of students exhibiting increased anxiety over the process of career choice.

Education institutions at all levels are beginning to recognize the importance of providing students with more assistance in the area of career development.

The Career Development and Placement Center of The Pennsylvania State University assists students in exploring, confirming, and implementing their life/career plans and goals. The center views the career concerns of individuals as developmental in nature and, therefore, provides services that potentially benefit any student of any major or term standing.

Several stations in the Career Information Center present occupational information by way of the Career Tapes. This system utilizes audio-taped presentations to describe the Penn State Academic Majors (4-year and 2-year programs) and related careers. There are approximately 140 tapes in this series. Because of the rapid changes in salaries, supply, and demand the tapes are reviewed each year. These tapes describe the cluster of occupations related to a particular major, presenting information about the nature of the occupations, current supply/demand data, salaries, career ladders, and graduate programs. They are developed by the Career Development and Placement Center with the cooperation of the various university departments.

In addition to its use in the Career Information Center this audio career information system is being used on all Commonwealth Campuses and is also available to students via the universities "Dial-Access" system. The "Dial-Access" telephone network permits students to obtain information at seven (7) Listening-Learning stations on the University Park Campus.

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As was noted in the slide-presentation the Career Information Center has been organized so that students can enter this system of resources at their own point of need. Each station has a printed index or guide to the information contained in that area to aid the student in quickly satisfying a specific career information need. However, for many students the center is a place to browse, a place where they begin to identify their own values and goals and to explore the world of work.

Many students have only a basic knowledge about an occupation of interest. They are interested in learning more about the occupation, but they don't know where to begin. At Station 3 of the center these students will find the "Occupational Awareness Inventory." This module has been designed as a study guide to aid the student in conducting a personal occupational exploration. As a student works through this inventory he will answer a series of questions designed to provide a well rounded picture of an occupation in the context of todays world of work. In many instances issues that have not previously been considered are brought to the students attention. The inventory attempts to develop an awareness of:

1. The nature of the occupation
   a. What I especially like about the occupation
   b. What I don't like about the occupation
2. How your values and interests might be satisfied by this occupation
3. Training and qualifications required
4. Entrance to the occupation
5. Career ladders
6. Career clusters
7. Employment outlook
   a. National
   b. Regional (if the student has established an area of geographic preference)
8. Salaries
   a. National
   b. Regional (if the student has established an area of geographic preference)
9. Identification of sources of additional information

The resources required to complete this inventory are found within Station 3, the Career Resource Information Station. As you can see a great deal of emphasis is placed on regional as well as national information. Surveys such as the State Department's Vocational Education Management Information System and Commonwealth Baccalaureate Degree Follow-Up Study, along with student interviews, present a picture of a graduate population that is to a large degree immobile. This points to the need for regional information. In the past many students with regional interests have had access only to national data. This can provide a very misleading input to the process of career planning. For example, the national projected demand for Accountants, at the present time, is approximately 40,000 per year. However, if one is concerned about the demand within the State of Pennsylvania that number reduces to 1,670. Again if a person is concerned about demand with the state (i.e., Philadelphia metropolitan area), that figures shrinks from 1,670 to 871 and if a person is concerned about the demand for Accountants in a more rural area of the state, the number would reduce even further, perhaps to a figure like 40 or 30. So it is necessary to properly define the geographic location of demand. This is extremely important if a person has established geographic boundaries on where they will travel to obtain employment. In such cases the potential supply can be isolated from demand.

A topic of great interest to most students is - the job outlook for college graduates. Often the student is looking for only a capsulized summary of the job market. In response to this interest the Career Development and Placement Center has published "The Job Outlook for College Graduates." This publication presents current supply/demand data based on the "Occupational Briefs" developed by the U.S. Department of Labor, Bureau of Labor Statistics in May of 1976. A general overview of the job market is also provided, along with a discussion of rising job requirements, the supply of jobs candidates with college degrees, and the problem of underemployment. This booklet has been distributed through counselors, academic advisors, the faculty, and the Career Information Center.

Another very important section of the Career Information Center is Station 4, that section dealing with Career Implementation Strategies. Traditionally Placement Centers have, to a large degree, focused their attention on facilitating employer/employee job interviews with a strong effort being made to place the graduate in work related to the field of study, if the student so desires. Although the first job is very important to the young graduate, job placement must be more than an exit service if the employee of tomorrow is to encounter several major job changes in his lifetime, "job placement" is a skill he should take with him.

Station 4 utilizes five study modules to assist the student in developing interviewing skills and job search strategies. The modules deal with "Searching out and Identifying Potential Employers," "How to Contact Employers," "Enhancing Job Interviewing Skills," "Selecting from Employment Alternatives," and "The Transition from School to Work."

These are but a few of the strategies we are currently using to present career information in Penn State's Career Development and Placement Center.

Planning for one's future in today's complex society is certainly not an easy task: it demands early and continued attention. To address that complex task the Career Development and Placement Center's purpose is:

- o to help students learn about themselves and various career alternatives
- o to help students develop an appropriate plan of action to enhance their opportunities to enter their chosen field of endeavor.

PENNSYLVANIA POSTSECONDARY DEGREE PROGRAMS: NEED, AVAILABILITY, SUPPLY, OVERSUPPLY

S. V. Martorana*
Eileen Kuhns**

The genesis of this project was a State Board of Education resolution passed in the fall of 1974 calling for the study of all college and university academic programs in Pennsylvania with an examination of the extent to which there was program duplication. This resolution was referred to the Pennsylvania Association of Colleges and Universities (PACU) Executive Committee for reaction. The PACU Executive Committee consulted with its membership and decided that the study would be more readily accomplished or would likely achieve better results if done as an activity of the Association. The Center for Higher Education at The Pennsylvania State University was approached with a request for help in the design of such a study. When developed, the design was to go to the Executive Committee for review and approval. Under the agreement which resulted, the first named co-author of this paper was given a continuing relationship to the study; his task was to develop the design and to maintain a consultative supervisory relationship through its completion.

The study design proposed that the project be expanded so it would be concerned not only with the issue of possible program duplication but also with the need to identify gaps in programs provided. The proposition advanced was that one cannot determine program duplication and whether or not such co-existence of programs might be deemed wasteful until a broader understanding is established of the need and availability of programs in relationship one to the other. Thus the terms in the title--need, availability, supply, oversupply--were developed as a description of the main emphasis of the study.

From its beginning, the study has attempted to gather data about all the programs in Pennsylvania leading to recognized academic degrees--associate, baccalaureate, and higher degrees through to the doctorate.

This is a cooperative study endorsed by the PACU Executive Committee and the states association of proprietary schools. There are 226 locations for instruction leading to degrees and over 5,000 curricula identified that have organized programs leading to degrees at those locations.

In the study design we attempted to obtain data that speak to a number of considerations. These include: needs, availability to students--to those who are consumers of educational opportunity in the state--supply of programs with varying characteristics, and whether or not there might be oversupply. One consideration in the overall design is occupational demand--the relationship of the needs of the economy for trained personnel, and the production of graduates from the academic programs that feed into the occupational requirements of the economy. We stress however, that this is only one of a variety of elements included in the study, and we also stress the voluntarism that is basic to participation in this project. This voluntary cooperative venture involves all of Pennsylvania's postsecondary institutions.

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But the purpose of this presentation is to focus on employment or occupational assessment. First, a program is defined by a Higher Education General Information Survey (HEGIS) code. It specifies a program degree level leading to a particular degree such as the associate in arts, all the way through the doctorate level. We needed to identify a program and an occupational relationship. So in cooperation with Dr. Roger Bezdek, senior economist, Division of Solar Energy, ERDA, we first took all of the occupational classifications in the Dictionary of Occupational Titles that related to the programs offered in Pennsylvania and created cross-reference listings of program titles (HEGIS codes) with occupational titles (DOT codes). One of the basic reasons for doing this was to make our data compatible with the occupational data available through the Bureau of Employment Security, Department of Labor and other agencies. They are presented by occupational titles and not by educational programs, so there was a need to translate occupations into educational programs. After this cross-referencing was completed, Dr. Bezdek began to look at all of the bibliographies throughout the nation that were available in the area of occupational supply-demand. This was done on a national basis as it related to the Pennsylvania situation with regard to baccalaureate and higher degree graduate supply. For the associate degrees we used sub-state divisions (standard metropolitan statistical areas) for this relationship. Additionally, he developed a bibliography of about 400 studies of various kinds, very current studies having to do with employment. This, in itself, will be an interesting outcome of the study. As a further source of information about the projected relationships between supply of and demand for graduates in specific fields, he contacted over 150 professional organizations. We mention these resources because they are important in the data gathering design utilized by Dr. Bezdek.

There was neither time nor resources to do many studies, as far as going from the ground up, about employment across all of the educational areas in Pennsylvania postsecondary education. Instead he went to the experts in the many fields represented in the educational programs in Pennsylvania. When he had done this, he began to address the basic approach of employment and graduate relationships. Projections were made of both graduates and jobs up to around 1980 and in some cases beyond that. Again, we stress it was done primarily for Pennsylvania but the national information was of course important, particularly at the doctorate level. But he was particularly concerned with the Pennsylvania situation. With respect to all HEGIS code programs in Pennsylvania, he indicated whether there was adequate demand (the projected supply of graduates was less than or equal to the projected demand for them); whether there was less than adequate demand (the supply of graduates was greater than the demand for them); or whether there was simply insufficient information with regard to that particular program.

Adequate demand, in a general sense, is a matter of whether the projected positions are going to be sufficient in numbers for the graduates who are projected over the same period of time. If they are roughly equal, or there are fewer graduates than jobs, demand is regarded as adequate. The other side, of course, is the inadequate demand wherein there are more Pennsylvania graduates than jobs. The information that will be presented in the study has not only the kind of supply-demand designation that we just talked about, but behind each one of these are professional judgments based on all this wealth of data from the people who are closest to a particular occupation.

We could go on in much detail about this, but let us close by relating a recent conversation with a professional in the Harrisburg area. We were talking about the study, and his reaction to our conversation was this, "Do you mean that the educational establishment is really going to look at occupational supply-demand needs in terms of developing a strategy for academic programming?" Certainly this is a question that academicians are looking at very carefully. Occasionally in the past they have been interested about occupational estimates of various kinds, such as for engineering, the result of which have made them very cautious and skeptical. Educators also question whether education's purpose is to satisfy labor market needs, and or whether it is for much broader purposes of the individual and society. And that is certainly an issue that the policy group directing this study is dealing with at the present time.

INDUSTRY LOOKS AT MANPOWER-NEEDS

Samuel W. Seeman*

The title of this symposium and the topics and affiliations of those speaking all indicate that it is an examination of people at work in terms of the education and training they need, the mechanisms for putting them to work, and the methodology for gathering and using information about them. Curiously, the symposium provides for very little input on the part of those who actually employ people at work. It also provides little opportunity for insight from those who actually perform the bulk of the work that is done.

With respect to employers, that arrangement may very well assume that their range of vision on the subject is a short one. It suggests that their perspective on people at work is limited to the parochial problems of meeting their own particular manpower needs and on a short-term basis at that. Unfortunately, both the assumption and the suggestion probably are accurate, so that what an employer can contribute to this symposium is limited and specialized. At the same time, happily, it frees an employer from the need to use extensive data or rely on statistics.

Nevertheless, it is useful to use two sets of numbers as a starting point. Some 8 years ago 6 of every 7 jobs were in the private sector--and that included many private jobs which were publicly funded, such as those making defense materials and building the interstate highway system. Now, less than a decade later, only 5 of every 6 jobs are said to be in the private sector. To a non-statistician living in a time when the proportion of those working to the total of those in the labor market has also declined, that suggests that there has been a serious loss in the capacity of the private sector to put people to work.

It is not because the private sector, business, does not want to put people to work. Certainly employers constantly endeavor to control their manpower costs and to things more efficiently. Certainly they replace work by hand with work by machine when the machine can do it more cheaply and as well or better. Sometimes competition and cost pressures make them do it even when the machine doesn't do the job as well.

But it would be very hard to find an employer whose main goal is to reduce the number of people working in the enterprise. Enterprise is, in fact, the proper name for it. The employer's main goals are most likely to be to maximize profit and to grow. And growth almost always means more employees.

It was suggested that one of the topics for this discussion should be "The Role of the Private Sector in Creating New Jobs." Fair enough, but it should be clearly understood that <u>the</u> role of the private sector is most emphatically <u>not</u> to create new jobs. The role of the private sector--and note that it is still the biggest part of our total economic fabric--is to create goods and services of sufficient quality to sell them, and at sufficient profit to stay in business and reinvest and grow. A byproduct of the successful performance of that role is the creation of new jobs. That should not be surprising--and it's been going on for a long time, and here, at least until recently, better than anywhere else.

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*Chairperson, Philadelphia Employer Advisory Council

Jobs do not exist and are not created in the private sector because someone wants to work or because society needs more people working. They exist and are created because there is work to be done. In the long run, no employer will retain or add people unless there is salable fruit of their labor. That sounds obvious. Behind us lies a litter of failed public programs to demonstrate that annoying fact and present among us now are some results of the Comprehensive Employment and Training Act which are demonstrating it anew.

If what has been said about the fundamental nature of jobs is accepted, it follows that what the private sector needs to stimulate employment is not new incentives. What the private sector needs are freedom and opportunity. That is not to suggest a return to unbridled competition or removal of constraints necessary to preserve our environment or necessary to assure equity and proper conditions of work. It is to suggest the removal of conditions that impair opportunities, erode efficiency, and limit markets. One example on point is laws and regulations said to be for the sake of safety but, in fact, designed to preserve jobs that are not needed. Another is laws with admirable social goals, but implementing regulations which generate costly new bureaucracies in government and in the private sector as well -- which, in turn, generate reports and data which no one uses.

Given the opportunity to grow and freedom from irrelevant costs, the private sector does not need other incentives. Assuming the availability of one other vital ingredient, jobs will be created.

That other vital ingredient is people who are able to do the work or able to learn how to do it, and who want to do it. On this score, it can be fairly said that the attitude of private sector employers is one of concern and uneasiness. At the very best, except in periods of high unemployment, it lacks confidence that there will be an adequate supply of people equipped to do the jobs it may create.

This is not the proper place in this symposium to dwell on education for work. Nevertheless, it is common knowledge that much of the product of our school systems does not enter the workplace adequately equipped with the basic skills and knowledge necessary for doing or learning the job. Many who have had vocational education enter the workplace after training which is inadequate and, sometimes, after training which was irrelevant. Probably some of the blame for those conditions can be laid at the step of the private sector. If so, it should be laid there more emphatically in order to get on with the solutions to the problems of manpower supply. But the fact is that a major proportion of the workforce is not adequately educated or trained.

The other assessment the private sector would make of the workforce has to do with the attitudes and values of workers, including many managers. The problem is hard to define without using emotion-loaded and dangerous phrases such as "return to the work ethic." Nevertheless, the observation can be made, and constantly is made, that for all too many a job is only something that is necessary to produce income to buy things. The results may not show up in a definable way in overall manpower statistics, but they are clear enough in the factor, the office, and the railroad freight yard. They are absenteeism, turnover, wasted material, machine down-time and irrelevant grievances. Having identified the condition, it should be hastily and emphatically noted that the means for improvement are not about to be quickly and neatly prescribed. The condition in question clearly is part of our whole social and economic structure, and it is almost meaningless to say "go back to work ethic."

One small suggestion can be amde, however, and it is made to those in the spheres of government and education as well as to those in the private sector. While we have masses of quantitative data about the workforce and the manpower market, we don't really have much qualitative understanding about why people work, how they feel about their work, and the values they place on it. Much of what we rely on, on the subject, stems from limited academic studies and from what unions, as the representatives of workers, have to say. They are valuable, but they are not enough. All who are concerned with manpower problems and manpower information need to know more and understand better and we need to get about it. It is hard to see how the private sector can recruit and manage its workforce or make suggestions to education and government without better understanding of the motivations and values people have with respect to their work. It is just as difficult to see how education and government can do without it.

Discussion of that problem which seems to be shared by all naturally leads to the next question: If the private sector can identify some of the problems of the present, what can it say about the needs of the future in terms of quantity and of the characteristics of the workforce? How many and what kind of employees will the private sector need?

It is a fair question because the private sector needs the answers as badly as anyone. Unfortunately, business and industry can only be of limited help. As already mentioned, their perspective and their knowledge tend to be short range and parochial. Anyone who has ever participated in long-range planning for a business establishment knows how difficult it is to apply economic and market predictions and the possibilities of technological change in order to arise at accurate estimates of the numbers of people a single enterprise will need five years from now.

Accurately defining the characteristics of one company's manpower needs in terms of skills and knowledge just does not seem feasible. The task seems to be one for government because government is in a position to assemble, organize, and analyse and inform.

It would not be consistent to conclude this presentation, which has been filled with problems and questions but very few answers or solutions, without mentioning one more problem. Both government and education can do a better job of gathering information and valuing the information and projections they receive from the private sector. It is not hard to cite specifics. And any improvement should be self-reenforcing because it will encourage the private sector to do a far better job of supplying the essential basic raw information and ideas.

A BOTTOMLINE VIEWPOINT: INDUSTRY LOOKS AT EDUCATION

Robert Heltman*

Those thoughts which perhaps might be most useful to us today, in our roles as statisticians or data gatherers or users, leads me to a title for this brief message. I call it: "Having impact with your statistics and with your life." There is a very important value message here. Each of us, as we go to bed at night and as we finish different phases of our life, really wants to know, before the God we all stand, whether or not we've done something of value, something to help our fellow human beings. It's one thing to be just a gatherer of data or just a personnel person doing daily chores, but there's something else to causing important needed changes for the better. In my travels around the state, attending public hearings (and everyone of them that council has held since late '74), there is one thing that comes to me so clearly, and as being so important, it is the central issue I am going to share with you today. That has to do with community ownership, community responsibility in solving problems be they education or environmental systems or whatever.

The solutions to educational problems are going to mostly be handled at the community level. I suggest that this has very important inferences for how data gathering and generation can be done. There was a Needs Survey done recently in my community (Erie). This survey was done so well that it was written up in the October Fortune Magazine as being perhaps the best needs survey in the nation. The magic in this survey is not the numbers, because numbers are rather cold. But if you get people involved in the gathering of numbers, and they have some ownership in them, they're going to have relevance and importance. That happened in the development of this survey in Erie. Organizational meetings were held including people who are employers, discussions were held about the need for skilled manpower and the need to do the survey well. When it came through the mail, it didn't receive the reaction most of us have had about unannounced surveys that come through the mail--just more damn work to do--especially if you don't understand the background and importance of that survey.

I want to just read from the survey some key points as to how the folks up there feel about what's important. Just imagine, if you will, how that community is tying together around numbers. "The annual skill needs survey of manufacturing aids industry in future employment planning. It assists school boards and administrators in implementing career education in the local educational units based on the types of jobs available in the Erie area. It provides counselors and teachers with occupational information to help students prepare for future job opportunities guidance. It aids the city's and county's federal manpower administrators to properly utilize over $2 million training money that is available in picking the right programs. It develops an awareness throughout the community of the occupational opportunities that really are available. It helps the students to think more about what the future is like. It assists manpower program operators plan occupational training based on the curriculum, equipment and facilities needed to provide the proper instruction." If you know about AVTSs and the large number of crafts committees, you can see again how all this ties together. Most significantly it has been a basic part of the proposal which lead to the Regional Occupational Skill Center

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*Chairperson, State Advisory Council for Vocational Education, Pennsylvania

which is presently under construction and will be on board in 1977. Obviously, the Erie Needs Survey is a living viable document! It has impact and the people who participated in it feel very good about it and the numbers will be credible. I really believe community involvement is the answer, and I've seen it in contrast when I go to other communities for the advisory council and listen to the testimony. What fun community collaboration can be, what essentially good changes we can make, and how each of us can go to bed at night saying "I think I made a little progress." And how warm it makes those cold things called statistics.

Another point I want to go into that tie to developing valid occupational statistics, build upon the Erie study as a case example and they come under the heading of "synergy."

Some pretty bright folks have looked at the United States economy and they said that there are three really basic problems...unemployment, inflation, and the energy crisis. Maybe brighter, more knowledgeable people would pick some other areas, but I think if you want to effect change, the secret is tying these things together. Example: our previous speaker talked about capital formation briefly and the need for it in the private sector in order to increase the number of jobs, decrease unemployment and increase tax revenues. There is lots of motion going on in the private sector to try and aid the capital formation issue. For most industrial jobs it takes an investment of about $33,000 to create a job; that's the machinery, the tools, the floor space and so on. The programs that are being recommended are to reduce double taxation on dividends and to take care of better, quicker tax write-offs in depreciating machinery. That frees up money to invest in jobs...the jobs identified in the Needs Survey.

When you take a needs survey in a local area and you try to tie together its impact on the economy, I just wanted to show you a few charts that really sell and really involve more people in effecting change. This is one of the charts. It says 6500 new jobs in the area mean personal increase of income in the area of $65 million. Now suppose you were a grocer, a radio salesman, a school or something else; that means there are a lot more dollars floating around for you. That makes the area healthier, it adds jobs. Bank deposits go up. Retail sales and number of retail outlets increase. That's the power that statistics can have in tying things together. When a syncgistic macro-economic view is taken, and all the interested parties are involved--then change for the good <u>will</u> occur!

Another point has to do with personalizing communications. Know the people that you're going to contact to get data. If you're close enough, it's really nice to have eyeball contact. People working with people are going to solve the world's problems; no other way. Provide feedback. If you put in a lot of manhours filling in a study and you sent it off, you'd sure like to know what happened!

Also, personalize your written communications. It's too easy for me, when I have to survey a lot of people, or issue a broad communication to several thousand employees, to write a letter that, when I sit back and look at it, is cold and impersonal. It's very embarrassing to me but it's easy to fall into that trap. It takes a little more time, but it gets the job done better, if you don't know everybody personally, to nonetheless write a personal sounding letter to: 1) explain why it's important to the recipient to do the study, 2) promise them early feedback, 3) and put down your name, address and telephone number.

I think the folks in the private sector, not that they're better or worse than anybody else, simply live in a world that is always oriented towards action. The more you can do to synergize your data, inter-relate it and help have impact to improve the human condition generally, and the private sector employer's condition specifically, the more they will appreciate you and the more they will want to work with you. In conclusion, my main points are these: 1) work to build broad local community involvement, 2) work to have impact, that is cause needed change, 3) synergize your approach--tie surveys to local state improvements in the economy, the employment situation, etc., and 4) deal on a personal level--avoid cold letters and suprise surveys--make it easy for survey recipients to talk with survey sponsors.

That's the end of my message, except that you deserve a little "statistical" humor, and I'm going to share that with you. "Statistics prove that 50 per cent of married people are women. Smoking is the leading cause of statistics. For every man 85, there are seven women, so what? On a per-mile basis, space travel is the safest mode." I shall close with a statement by Mark Twain, and I have to confess that I personally understand its reality. "Get your facts first, then you can distort them as you please."

LABOR'S CHALLENGE TO EDUCATION AND INDUSTRY

Harry Boyer*

We in the Trade Union Movement are deeply concerned about trends and patterns in the employment picture of this Nation. At the same time, we are continually searching for new methods of training and retraining working people to meet the needs of an ever-changing, modern, industrial society. We, therefore, compliment you for the vision and commitment you have expressed in designing and participating in this "Occupational Research and Information Symposium."

My topic for this "Group Session" is "Labor's Challenge to Education and Industry."

Let me begin by stating that in this Bicentennial Year we issue a challenge not only to the educational system and industry, but to ourselves, our membership, and all Americans in all walks of life.

We have come to a crossroads in our economic development where we at one and the same time, consume more goods and services than we have at any point in the history of our Nation, but yet have more people unemployed than at any period with the exception of the Great Depression of the 1930's.

As I stand before you today almost eight million Americans are "officially" out of work. If we include those who have given up searching for employment and those who are underemployed due to a downturn in their particular industry, the real unemployment figure may be as high as 12 million Americans.

We believe that such high unemployment is simply not acceptable, not now and not for the future. There is no reason that, with a cooperative effort, we cannot return to a full employment economy in which everyone who seeks work will find work available. By a cooperative effort I mean Labor, Industry, the Educational System, and every other segment of our society working together to identify the present and future needs of the American work force, and to then jointly support measures to put America back to work, is an approach which we think merits serious consideration.

Organized labor, throughout it's history in this country, has actively supported vocational education in our schools. Over the years, however, a growing sense of the failure of vocational education to relate to the realities of the existing and future job market led the AFL-CIO, at it's 1959 Convention, to call for the formation of a National Advisory Committee to investigate the situation. By 1962, the needs of vocational education became more intense. In that year a report of the Federal Government's Panel of Consultants on Vocational Education disclosed that vocational education, inadequately financed and too rigidly structured, was training young people for non-existing jobs and doing little to develop the skills needed in modern industry.

Although we have made great strides in vocational education since that time, it is our considered judgement that we must once again reevaluate our programs to meet present and future needs. We must work together to make certain that no available jobs remain unfilled because we have not met the needs of that particular job in our vocational education system.

*President, Pennsylvania AFL-CIO.

Our concern about vocational education goes beyond the concept of providing young people with the basic training they need for a particular craft or skill. We must also be providing methods by which skills can be updated as technological advances require such updating. And we would hope that industry and our public education system would work hand in hand with us in such a program.

We must also redouble our commitment to retraining workers whose jobs no longer exist or soon will be going out of existence because of either the death of an industry or the technological advance of automation.

At another level, outside of the basics of vocational training, we are also committed to programs in the field of Continuing Education. We, at the Pennsylvania AFL-CIO, for example, in cooperation with The Pennsylvania State University, participate in a program known as the Union Leadership Academy. ULA is a series of eight specialty courses dealing with such topics as "Labor Law", as well as several others, which are taught by competent and qualified instructors and are geared to the needs of rank and file union members. We would very much like to work more closely with educators and industry representatives in improving this program and establishing new programs to deal with the higher educational needs of working people.

The challenge to provide for the educational and occupational needs of our rapidly changing society is indeed a great one. We must meet the needs of the present while trying to plan and prepare for an uncertain future. Only through a cooperative effort by all segments of society including industry, the educational system, labor and government can we meet the challenge of putting America back to work now and providing for a full employment economy in the future.

JOB INFORMATION SERVICE AND AUTOMATIC MATCHING: NEW CONCEPT FOR PUBLIC EMPLOYMENT SERVICE

James Klein*

Today we find the Public Employment Service deeply involved with people seeking work. We estimate that the Public Employment Service receives about 15 million applicants a year. And Public Employment Service estimates a receipt of six million job openings. We find ourselves, however, filling about 60 to 65 per cent of those job openings. Obviously a disparity exists. Is it that the applicants we are not serving and not placing in jobs do not meet the employer's job requirements? Or, is it that we are doing a poor job in selecting applicants for those job openings. In a sense we have six million jobs and we are finding jobs for about three million people. What happens to the remaining approximately twelve million who are apparently looking for work? Those twelve million are a concern to the employment service, and I think are of concern to those in the education field for different and diverse reasons.

The Public Employment Service employs about 27,000 to 30,000 people in attempting to work with those individuals looking for work--to make that interchange between the job order and a job for a willing worker. The same number of people, 27,000 to 30,000, were employed in that activity about five years ago when instead of fifteen million applicants the employment service has ten million or less. So, we are seeing the same basic work force attempting to deal with a larger volume, and we are seeing this volume turn over much more rapidly, and in the last two recession years, with higher numbers of unemployed people.

Some of the employment service people have been utilized not to place people in available jobs, but rather to take claims for unemployment insurance which was an immediate need. If you have been out of work recently, you know what an immediate need it is to assure some level of income. This is not a criticism of that effort, but rather a pointing out of the diversity of responsibilities of the employment service personnel. In addition, in the last five years we have found ourselves with new responsibilities above and beyond what we had known before. We have the seasonal migrant farm workers' situation, which appropriately we have a responsibility, but certainly new responsibilities and new awarenesses in that field. These include enforcement functions as well as service functions. Also, the entire range of food stamp applicants and our relationship to their needs. Finally, the unemployment insurance claims are obviously large numbers, and certainly the highest numbers in our recent history. It is significant to note that presently we have approximately seven and one-half to eight million people unemployed and looking for work.

With some basic service staff we have, over the last several years, attempted in several ways to deal with an increased work load and specifically, the increased number of individuals needing employment services. One of those ways is the Job Information Service. One of the significant developments that paralleled the development of the Job Information Service was the "Job Bank." Job Bank was and is a method by which we are attempting to expose those six million

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job orders (the national figure) to the client that comes to the employment service office and needs help in finding a job. There are many ways of doing that through printed media, microfiche, etc. Presently we are attempting to improve the self-help techniques for those people who can help themselves. This is for the literate individual who understands the relationship of skills being asked for and introspectively their own skills in trying to make an effective job match.

These efforts resulted in a number of things. It did result in a number of people helping themselves to find work. It also helped in the affirmative action field, in that job orders are totally exposed, and provided for a more rapid response to employer orders.

For many years we have operated on a classification system for skills and for job orders which is called the Dictionary of Occupational Titles. It is based on a numeric designation for skill levels and for the types of skills. This system has served us well for the 43 years that the employment service has been in existence. But there is a growing recognition that it is inadequate in many areas. Arthur Schwartz was telling me about the problem that they had in that the system couldn't describe a ski lift operator. There was no classification sufficient to describe that particular job and there are others. This points out some of the problems inherent in the Dictionary of Occupational Titles. It is very useful in terms of a standardized classification of occupations, however, it has its limitations.

About six years ago experiments were begun in other areas. One effort was in describing skills and job requirements in terms of our everyday English language. As one of the largest countries in the world we have one great asset, that is, most inhabitants speak English. We have several dialects of English, but we do speak a standard language. So, for six years we have experimented with words, standardized English words--a vocabulary within a vocabulary. And out of this experimentation has grown a system which the employment service calls "automated job matching." This system does not match people and jobs by computer but does select high potentials for matching people and jobs. It is a way of addressing those 15 million cards in files across this nation to see if, in those fifteen million jobs, there are people who would have a high probability of matching those six million jobs. It is the same technique that is used by all banks, insurance companies, airlines, automotive corporations, steel corporations, and all other large organizations which have masses of data and information to use.

We will continue to use the same 27,000 to 30,000 employment service staff people in a job service office that we have today, but we will begin performing what we call file selection. If we were honest with ourselves, we would have to admit we do not do what is referred to as a file search. Once an individual is registered with an employment office or a job service office and their card goes on file, there is less than a three or four to one chance that anybody will really be looking at that card. If one is seriously interested in finding work, one's best chance to obtain a job is to keep contacting the job service personnel. So, all the computer does for the job service office is a search of files.

There are four ways in which we do this. First, we have what we call an overnight processing activity similar to what the banks do. For example, you have a number of transactions on your account during the day, such as the processing of five checks. The balancing of your checking account is not automatically and instantaneously transacted. The accounting procedure occurs that night when computer instructions are given to deduct all the day's transaction from the particular checking account. In essence the automated job matching system is the same. The computer is instructed to read the job files once a day, and for those job orders it selects possible applicants for referral for those job orders on the following day. In most cases we get ten or more referrals, and you can limit it or expand the field as to how many applicants you want to work with. In the morning an interviewer can look at a listing of job matches which indicate that five or ten people have certain qualifications which satisfy the requirements of a particular job. Secondly, the interviewer can go through the records that are available which has additional information about a particular person, and, if necessary, reinterview the individual. But the initial selection was done by having the computer match job requirements with individual qualifications, and thus minimizing the human activity in the selection of individuals for job referrals.

This process can occur in one of two ways, either using a job order to find applicants or for a given applicant to find possible jobs. So we have what we call a bi-directional system in which both of these are transacted over night.

Another way of job transaction is to have the computer do the matching on an instantaneous basis. This is similar to the transaction in which the bank offers the money card for doing your banking. For example, you put the card in a machine and get cash out of a cash drawer, and automatically your account registers that an amount of money has been given to you. This does not happen overnight but instantaneously. That is what an on-line system does. In regard to this application for the job matching process, we have a video-scope or a television type screen which instantaneously goes through the applicant file for a specified job order. Or for the applicant, it can instantaneously go through all of the job openings that are there, and pick out a number which appears to be suitable for that particular applicant. Here again, the interviewer has the opportunity to make a choice. These four ways of dealing with the job matching process are now available, and what we are, in fact, now implementing in a number of states.

What organizations can find this system useful for their individual purposes? Obviously the employment service, and its job information service component are the principal users. Comprehensive Employment and Training Act (CETA) sponsored organizations have an interest in this also, in that the end product of CETA training has to be a job if the CETA training is going to be successful. As a result CETA organizations are expressing an interest in using this automated system, and it will be made available to them. Also we see welfare organizations using it, and we see school systems, both secondary and post-secondary, using it primarily in their activities following the students' completion of education and training programs. There are other valid reasons for use by the school system, but in most cases the job matching aspect is of primary interest.

Another subject education area which relates to the interfact between the employment service and educations is labor market information. A number of questions can be raised. These include: What is transpiring in the labor force? What is available? What kinds of jobs in a given labor market are occurring and recurring, and with what rapidity? For instance we know that in most clerical areas there is a high turnover of jobs. Is that because people are entering and leaving the labor force rapidly or are there unfilled jobs that need additional human resources? These kinds of things are an instantaneous by-product of a job matching system, and should be helpful not only to ourselves in looking for applicants and attempting to attract different groups of applicants, but also should be useful for the educational system as a source of information about the labor market.

Certainly there are other things that can be done, and we perceive the day when our conversational English language can be used for direct applicant inquiry as a part of automated job matching system, for example, an engineer, or a welder. These are recognizable skill terms which can be used to communicate with "our job order files" to find out if certain jobs are available. And this system can be available either in a grocery market or a department store environment (places where there is no employment service office) to provide job information to interested individuals. Large employers, such as General Electric or Bethlehem Steel, could use this in their personnel offices to randomly access this applicant file to see whether or not we have people available for employment.

Obviously there are confidentiality restraints in regard to information, but the fact that we may have people available for employment encourages the employer to use this job service. So we see some developmental areas here for direct use by applicants and employers. The significance of these efforts is the greatest change that has occurred in the operation of Public Employment Service in its 43 years of existence. The change from a numeric descriptor of skills as described in the Dictionary of Occupational Titles to a conversational mode, that is the English language with key words. This is a completely different concept than found in the DOT. We believe it will revolutionize many of our standard approaches, many of the ways in which we work with people in our local employment service offices.

ANALYZING JOBS AS A SOLUTION TO OCCUPATIONAL PROBLEMS

Arthur H. Schwartz*

The purpose of this presentation is to review a process of analyzing jobs from a particular point of view. The approach is to discuss this topic using four true or false statements relating to occupational research and information. These statements are:

- o There are only two or three acceptable methods for analyzing jobs that will produce accurate occupational information.
- o There is no method for proving a high school degree should be a requirement for specific jobs.
- o Occupational information that presents statements such as "sales persons should be attractive" is helpful and acceptable.
- o Attitude, job satisfaction, and personality traits are not part of job analysis and should not be in occupational information.

Addressing the first statement most people think there are only two or three acceptable methods for analyzing jobs which produce accurate occupational information. The second statement, there is no method for proving a high school diploma should be a requirement for a specific job, has been and will continue to be a major issue. Many employers say they cannot establish educational requirements under present conditions; as a result we hear educators asking what is the future of education. Many think there is no method for proving a high school diploma should be a requirement for a specific job. So why not eliminate it?

Statement three, occupational information which presents statements such as "sales persons should be attractive" is helpful and acceptable, is equal to statement two with respect to its validity. If one examines all the published occupational information, one will find statements such as that. In high schools, libraries, vocational counseling centers, etc., occuaptional information is presented in those words. Publishers will send out occupational information which contains statements such as, "In order to be a sales person you have to be attractive," in order to help people obtain jobs. Is it helpful to have that kind of occupational information for career guidance and counseling and job placement?

The final statement, "Attitude, job satisfaction, and personality traits are not part of job analysis and should not be in occupational information," is another controversial statement in light of equal opportunity, confidentiality laws, etc. Isn't the statement true when you consider that there is no way of looking at job satisfaction, personality and attitude from a focal point where all people can agree?

These four true or false statements were a demonstration of the complexity and ambiguity of a process of analyzing jobs from a particular point of view. If you did not answer "false" to all four questions, then you know little about describing jobs. If you didn't answer those statements with a false response, and even

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if you are in the public employment service, Department of Education or wherever you are employed, you don't know much about occupational information and how to disseminate it.

Let's take specific examples of the occupational information we give to individuals in high schools or persons looking for a job. This example is not from the Department of Education or the employment service, rather its from an organization of industrial hygienists, advertising their own "product". A statement in one of their brochures states, "if you want to become an industrial hygienist, you cannot be guilty of fuzzy thinking." Now all you have to do if you are a high school student, a counselor, or an individual looking for a job, is to define what fuzzy thinking is, and say "now don't become an industrial hygienist, you are a fuzzy thinker."

There are many other examples of statements and words that create confusion rather than clarify questions that people have on various jobs. For example, in an employment service job guide for waiter/waitress a statement says, "If you want to be a waiter or waitress you must be even tempered." The job guide for the food service occupation says you must be able to maintain an even disposition. Therefore, this piece of occupational information is saying, "Don't forget you must have an even disposition," and the only problem is, "what is an even disposition?" A similar situation exists for persons reviewing a job guide for an auto mechanic. It states that you should have a feel for fixing things. How do you measure or define whether an individual has a feel for fixing things.

Generally, all the published occupational information is written that way. Many seminars on occuaptional information do not address those problems of poor definitions, etc.

Certainly, the problem isn't that occupational data and information does not exist, rather there is too much of it. We are drowning in occupational information. If you ask the guidance counselors, if you ask people who use it, but more important if you ask the employers, they themselves have problems in defining or explaining in understandable terms the valid requirements of a job. The interesting thing is that we are all guilty of the same crime, not knowing valid things about jobs. Therefore, when we make program training decisions relating to the Comprehensive Employment Training Act or Vocational Education Act, we are not certain of the validity of program content because we don't have reliable information sources on the basic job requirements. To support this contention of unreliable information, I offer the following true story.

In 1970, the last time the U.S. Department of Labor did anything in analyzing jobs, they looked at jobs nationwide to find out what were the hiring requirements. And they could not find any two cities that could agree on a standard set of job requirements. For example, in St. Louis 76 per cent of the employers said it does not matter whether you have a formal education degree or diploma to be an arc welder. In New York, 89 per cent of the employers said you have to have at least a high school education to be an arc welder. Therefore for an arc welder, press feeder, bank teller, and most interestingly of all, an orderly, which is the lowest medical job on the career ladder in a hospital, there were no two cities in the United States that could agree on a set of job requirements. Further, they couldn't even agree whether an orderly needs to read or write the English language. Surprisingly, there was a 71 per cent to 96 per cent variation in agreement as to whether or not you should be able to even read English as a job requirement for the orderly. Again,

this supports my contention that are not many people who know what the requirements are for the various jobs. Therefore, what is wrong with occupational information? Basically, people do not know how to define job hiring requirements.

Now let us take a look at the other side, that being the employers. Are they guiltless? Do they really know what they want? When we talk about work ethic and attitude, most employers now say that 95 per cent of poor selection of applicants who get jobs is based on personal characteristics and not on defined skills. These persons generally do not want to work and have a very poor attitude. Many employers from large corporations will not hire college graduates. They say many have no motivation for blue collar work, and when they do obtain jobs at that level then job performance is very low.

From various seminars throughout the state it is evident that many college graduates are not finding jobs. At Thiel College a high percentage of last year's graduating class did not get a job. Also, many of the graduating class from Lock Haven State College did not get jobs. There are many statements made by employers which have a negative side in regard to hiring young people. The following are examples:

- o No, we cannot hire college graduates because they do not make good workers.
- o We have a hiring requirement that we will not take anyone under 23 years of age.
- o Our personnel manager said that they only work for a car and then leave.
- o We will not take any kids, they only disrupt our place around here.

One example of a very unusual job order, and one which has some very well defined requirements--questionable in terms of validity--was filed in a local employment service office:

> I want all people who own their own homes, and who have never had experience in my industry because I will train them in my own way. Also, make sure when they commute to work that they never pass one of my competitors because they may stop and take another job.

These are an employer's hiring requirements: No experience, homeowner, and make sure they never pass this employer's competitors. Thus, the question--"Do the employers really know how to define job requirements and how to establish hiring requirements?"

Another example of a job order of significance came from a large Pennsylvania university. As you may well know they employ many people. From the personnel director came a directive that on every job order to be given to the employment service office there will be no experience requirement, no education requirement and no age requirement. Obviously age is easy to understand, but as one looks at a job order, for example, for a budget analyst, and sees no education and experience requirement many questions are raised. Is the university fearful of affirmative action or doesn't the University personnel office know whether he can prove education or experience are essential, even for a budget analyst. One final example focuses on state government. In the job specifications outlined by the State Civil

Service Commission there is a good example of questionable validity. For example the specifications for an employment development specialist reads and specifies "six years of experience required." Can the Office of Administration and their job analysis section prove that one has to have six years of experience in order to be an Employment Development Specialist? Why not five years, four years? To the extreme, if they go in the opposite direction and say no education is required, then that means anyone could be an Employment Development Specialist. The biggest threat to affirmative action is that employers think that "qualification" is no longer a part of job requirements. It appears that the belief by some is that you hire because of affirmative action and that you hire without any standards.

One major employer in Pennsylvania indicated that he hires people using a random number system. The first person randomly picked gets the jobs. Each applicant is given a number, and the hiring is by picking numbers at random.

In consequence what we have tried to do in the Job Service Office is to make people aware that they have to know their jobs--the requirements needed to perform the job in a satisfactory and productive manner. You not only have to know the job analysis part but equally important you must know how to establish valid job requirements.

If an employment practice which operates to exclude blacks cannot be shown to be related to job performance, then that practice is prohibited. That was a statement from the Briggs vs Duke court case; the landmark decision of the Supreme Court which has forever changed hiring practices. Now it reads that if any employment practice excludes people because of race, creed, color, age or handicap, etc., and cannot show that it is related to job performance, that practice is a violation of federal law. Actually the inference is that those words "job related" are very important, yet, in conducting numerous seminars with employers, educators, etc., I have found very few who have ever given much thought to what is job-related.

If very few people understand what is job-related and how you establish hiring requirements, how can we publish valid occupational information? I have tried to point out in this presentation that if the people in education, the employers and the employment service do not know what is job-related and how to establish valid hiring requirements, then a massive effort must be made to train them. Symposiums must be conducted on what is the meaning of job-related hiring requirements.

There probably are jobs for everybody and those jobs are based on qualifications. Someone has got to take the leadership role. Certainly the agencies represented here today, education, labor, government, private industry, etc., can all together address this task realistically. And then we can get people that are qualified, and the public will not feel that everybody is being discriminated against, because everybody is hiring people who aren't qualified.

THE IMPACT OF EQUAL OPPORTUNITY

Daniel P. Harley*

Last week the Department of Labor released its final nationwide report before the election. In the month of September, unemployment edged down to 7.8 per cent. Last year at this time unemployment was 9.2 per cent of the population.

In Pennsylvania, as of October 1st, the seasonally adjusted unemployment rate climbed 0.3 per cent; in September to 8.5 per cent. The actual unemployment figure in Pennsylvania is 369,000.

One of more recent trends of reporting labor statistics is the breakdown of the data to indicate the status of women and minorities to the remainder of the population. One factor in this data remains constant--the percentage of women and minorities unemployed exceeds their proportion in the general population. While a drop in unemployment is significant nationally, a disturbing announcement was reported in the Patriot News, Parade Section, October 10, 1976. Representative Louis Stokes announced: "Unemployment among minority youths has reached a dangerous and astonishing 40.3 per cent. Moreover, the unemployment differential between white and minority youths has widened drastically in recent years. In 1954, white teenage unemployment was 12.1 per cent and minority 16.5 per cent. Last year, when the white teenage unemployment rate increased to 16.8 per cent, the minority rate zoomed to 38.2 per cent a 21 per cent gap."

Just as a matter of informing the public, these statistics are given by the network news reporter as comfortably and as casually as the next day's weather is reported. To me, this is significant. Reporting this unemployment data indicated that the decision-makers of the national media are attuned to the fact that great disparities continue to separate minorities and women from the remainder of the population. The Department of Labor Data in cooperation with the news media informs those who control the business and economic communities of who is looking for work. Behind those nationwide figures of 7.8 per cent of the population looking for work is another story. It is a story that is too familiar and raises many questions which cannot be answered completely. It is the story of those who dropped out of the job search. They simply gave up in despair after months of failure to find a job. Those of us participating in this symposium can influence the worklife of some unemployed citizens. We can also influence the worklife of those already employed within our sphere. My concern is the workforce employed by the Commonwealth of Pennsylvania. To answer a few of these questions we call attention to three major areas related to the workforce of the Commonwealth of Pennsylvania.

(1) A brief analysis of unemployment and underemployment figures of minorities in the Commonwealth workforce.

(2) Approaches which can be used to remedy existing inequities surrounding unemployment and underemployment.

(3) Approaches to be used by the Bureau of Affirmative Action to equalize employment opportunity.

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As of June 30, 1976, the Personnel Management System within data for the work force of the Commonwealth of Pennsylvania, shows that of the approximately 109,100 employes, 53.45 per cent are white males, 35.22 per cent are white females and 11.34 per cent are minorities. This percentage breakdown does not appear to indicate much in a vacuum. As it is scrutinized, we discover, however, that the largest proportion of women, both minority and nonminority, are employed in the traditionally clerical and human services categories. Closer scrutiny of salary levels show a disparity of earning power using the average wage of the white male of approximately $14,000 per year, the widest disparity is a $3,080 difference for the minority female, a notch upward is $2,800 a difference for the nonminority female to a $890 difference for the minority male. These Commonwealth disparities suggest several things, some of them have been true historically, minority males are appointed at a higher rate than nonminorities usually in several agencies as a result of workforce expansion. This means that a high percentage of minority males are first year workers with low seniority status, making chances of furlough much greater when the economy at large and in the Commonwealth workforce contracts. First year workers generally have a higher turnover rate as adjustments are tried in a new work experience. It is painful for me to consider or suggest that there are existing forces willfully or unwittingly unleashed to pressure women and minorities into job dissatisfaction.

We, as American citizens, take pride in the fact that we are basically law abiding and believe in the "Common Good" of all of us. To support this tradition, we look to the constitutional and total legal structure to find concepts interwoven into the American dream. The 13th Amendment ended the evil of slavery. The 14th Amendment extended to all citizens equal protection of the laws. The 5th Amendment reminds us that the Federal Government must honor the same rights as the states are required under the 14th Amendment. The Civil Rights Acts of 1866 and 1871 enumerated and explained further rights and privileges granted by the 13th, 14th and 15th Amendments to the Constitution. As events further pricked the conscience of the nation, the need to protect <u>all</u> Americans against specific evils was embodied in the Civil Rights Act of 1964. As you all well know, Title VII of this Landmark Act prohibits employment discrimination on grounds of race, color, religion, sex or national origin. Further, with interest to eradicate past discriminatory practices, additional steps were taken in the form of Executive Order 11246 requiring that all covered contractors with the Federal Government could not discriminate. Affirmative Action became an established principle to find and make appropriate use of minorities and women in the labor market. Affirmative Action requires an employer to do more than refrain from discriminatory practices and policies. Affirmative Action must go beyond maintaining policies of passive nondiscrimination. Affirmative Action is taking <u>positive</u>, <u>results-oriented</u> steps toward the elimination of employment and career development barriers to minorities and women. Yes, it can work. Yes, it is working where it is organized and implemented appropriately. Attainable goals and timetables are fundamental to the Affirmative Action concept. Where intentional discrimination is eliminated, systemic discrimination has been eliminated, most often the present effects of past discrimination remain.

It has been my experience in dealing with employers in the public sector and private sector that few fall in the category of "Evil Doers" or have evil intent but as time passes they have simply been entrapped with traditional thinking. This, now, brings me to my second major point. Let us briefly examine some of the systemic and unintentional ways that discrimination continues to consume valuable people resources. I firmly believe that as we openly discuss problems and even feel some mental discomfort, an awareness develops and it becomes a little more difficult to revert to a comfortable traditional approach.

Before we begin this examination of traditional practices, which may be discriminatory, I must make very clear the fact that in no way are we saying that a person from a minority group or a woman is to be hired, retained or promoted just because that individual is a minority or a woman. I am saying that at minimum, the same hiring, retention and promotion practices should be afforded them that has always been afforded to white males. I am saying that good management principles in the public and private sector dictate that qualified minorities and nonminority women be given the opportunity to put their talents to use rather than hiring, retaining or promoting an unqualified white male.

Let us now examine the established personnel system. In the employe selection process, we have relied heavily upon two basic requirements. These requirements are academic credentials such as a diploma or degree, the other is testing of one type or another.

Ideally, under the concept of merit employment, selection, classification and promotion must be based on objective factors to avoid some obvious evils of cronyism and favoritism. Too often, when jobs become available, a supervisor or manager informs a friend, a brother or a cousin. Too often the crony is ready in the background to walk in the position before an open announcement is made about vacancies. Prophesy of not finding qualified applicants can become self servicng when recruitment is selective. A commitment to Affirmative Action is an obligation to use recruitment methods which attract candidates which we seek. To find quality minority and women candidates, here are some effective methods: (1) Advertise in minority and women's media, (2) Recruit on minority and women's campuses, (3) Contact minority and women's groups to inform them of anticipated openings, (4) Recruit in convenient locations, and (5) Use the word of mouth to minority and women employes and develop an affirmative equal employment opportunity image.

Two other major difficulties arise with the merit system. Built into this system of objective criteria of educational requirements, tests and veterans preference often have an adverse impact on minorities and women. The educational criteria or qualification, however, objective often cannot be shown to be related significantly to specific job performance. The latter difficulty becomes more puzzling when an employe is performing a job well, according to the supervisory reports, and cannot pass the required written test. A legitimate question arises in the instance just cited. The question is, what does the test measure if the person working in a job has been rated successful. Another important consideration regarding educational requirement to remain still gives an advantage to those who can meet the requirement, regardless of wehther it is job-related. Closely related to educational requirements to qualify for specific jobs, is the broader concept of the role of educational institutions in emphasizing equal opportunity and affirmative action thinking. The role of public education as a beneficiary of federal funds is addressed by the Civil Rights Acto of 1964. I am concerned that the Department of Education develop policies and administer guidelines to affect positive images about minorities and women. I am concerned that textbooks purchased with common tax dollars and used by our children reflect and instill the value of human dignity. I am concerned that in the institutions of higher learning, which produces many of our leaders, faculty and students embrace the concept of worth and respect for themselves and other people regardless of race, sex, color, religion or national origin. It is to the educational instiution which the law

says we are to entrust our children's minds for twelve years. The educational institution identifies, defines, then perpetuates and memoralizes our value system. We are all products of our educational inputs and reenforcements. Existing work force disparities are sad reminders of those early inputs.

The veterans preference provides a means of enhancing initial employment opportunities of veterans and often weighs favorably in subsequent career opportunities. This system inevitably discriminates against women.

The issue of testing has been settled by the U.S. Supreme Court Decision of March 1971 in the case of Griggs V. Duke Power. The court decided that employment tests or qualifications which screen out minorities or women at a greater rate than others cannot be used unless the employer proves that the screening device in question is manifestly related to the job for which it is uses. Such proof must be in the form of a validation study conducted according to provisions of the equal employment opportunities commission testing and selecting employees guidelines (29CFR 1607), which incorporate the standards of The American Psychological Association for Such Studies, (Willie S. Griggs V. Duke Power Company, 401 U.S. 424 (1971).

Let us now turn to the issue of what prevalently happens to minorities and nonminority women after becoming a part of the work world. Under practical pressures of time, understaffing and overwork, there is sometimes an inclination for personnel officers to use shortcuts in applicatn evaluation. Stereotyping can be an unconscious result if deliberate caution is not exercised, for example, many if not most women applicants will be applying for clerical positions. Many if not most, minority applicants will be applying for positions in the service/maintenance category. This pattern occurs because of educational disadvantages and past discrimination in their employment experiences.

Because of these employment patterns, it is sometimes wrongly inferred that women and minorities "naturally belong" in particular jobs. Consequently, they are sometimes wrongly--and unlawfully--"steered" into certain positions at the earliest stages of the selection process.

Later, after being hired, many individuals in lower level positions find they are being held in those positions for the convenience of their supervisors, under policies which make it difficult to apply for a transfer without informing their current supervisor in advance. Since minorities and women are usually grouped in the lower categories, such policies tend to have an adverse effect on them.

Finally, because people assume that minorities and women are not prime material for career advancement, they are often overlooked or specifically excluded from training and counseling opportunities which lead to advancement. Several informal channels are used to give employes important opportunities to broaden their experience to pave the way for career advancement to more responsible positions. For instance, the division chief or bureau director who delegates important managerial functions to one person rather than to another is making decisions which affect the careers of both. The department head or regional director effects careers when one employe rather than another is asked to attend an interdepartmental conference which the department head and regional director cannot attend. These are just two instances of informal channels which can be expanded to include minorities and women providing them the opportunities to get at least a crack in the door of career growth.

We have partly examined and partially analyzed the historical discriminatory practices which lead to the establishment of equal opportunity guidelines, we have given suggested approaches to eliminate past discriminatory practices and prevent future discriminatory practices. To conclude, I share with you the objective and approaches to be used by the Bureau of Affirmative Action in the Commonwealth of Pennsylvania. Our objectives are: First, to identify areas of the work force in which minorities and women are underutilized and direct an aggressive program of hiring and promoting those qualified thereby correcting imbalances in the work force: Second, to identify and correct practices within the Personnel Management System which impedes an open and equitable personnel system. We will interface each strata of the Commonwealth work force from the top to the bottom levels. We are extremely fortunate to have open support and commitment to implement this program from our Governor, Milton J. Shapp, Lieutenant Governor, Ernest Kline and The Secretary of Administration, James N. Wade. To aid in implementing this affirmative action program, a work group of the various facets of the Personnel Management System has been working for about six months to examine the present status of the personnel system. This work group is composed of representatives of the Civil Service Commission, Bureau of Personnel, Bureau of Labor Relations, Central Management Information Center, Bureau of Management Services, The Secretary of Administration and The Bureau of Affirmative Action.

The Affirmative Action Advisory Council mandated by Executive Order 1975-7, chaired by the Lieutenant Governor, will be composed of agency heads only. The council will have a revolving membership permitting every agency head to participate within a three-year period. The first meeting of the council is to be held October 21, 1976. The function of the council is to provide feedback to the Secretary of Adminiatration and to raise issues and make recommendation for resolving personnel management issues related to nondiscrimination.

The Bureau of Affirmative Action has been organized to give agencies maximum service in meeting the Commonwealth's Affirmative Action Program. To accomplish our goals, we anticipate a policy statement by the Governor to be disseminated by agency heads under the Governor's jurisdiction.

Here are just a few of the tasks to be undertaken:

(1) Every facet and level of the work force will be reviewed to identify areas where minorities and women are underutilized.

(2) Job specifications will be reviewed and revised to parallel new job descriptions.

(3) Positions, qualifications and test will be reviewed to assure that each accurately reflect the needs of the job and no more.

(4) Orientation and training programs will be instituted to assure that the needs of new hires are met to assure that the needs of employes in new functions are met.

(5) Upward mobility programs are strengthened where they exist and develop in agencies without a program.

The Bureau of Affirmative Action has three divisions: Program and Technical Assistance Division; the Legal and Research Division; and the Evaluation and Planning Division.

The Program and Technical Assistance Divison has the major functions of being the liaison between the Bureau of Affirmative Action and the other departments. This division will conduct audits of affirmative action activity, provide technical assistance in all phases of the affirmative action process as needed and assist in the development and conduct training for agency staff.

The Legal and Research Division will have the staff attorney recommend litigation on behalf of the Commonwealth to insure that goals and objectives are met, maintain liaison in drafting and reviewing legislation and conducting legal research of other jurisdictions and recommending legal changes.

The thrid division is the Evaluation and Planning Division. This division is to set guidelines and standards for agency plans, develop and refine the technique of affirmative action goal setting, analyze affirmative action statistics and progress reports. This division will participate with the Bureau of Personnel in agency personnel management review and ahare monitoring and evaluation data with members of the Program and Technical Assistance Division. Following data analysis, the division will assist in developing strategies for overcoming problems identified within agencies with affirmative action problems.

To serve as a guide for agencies and the Bureau of Affirmative Action, the interactive management procedures for the Affirmative Action Compliance Manual (commonly called IMPAAC) was revised and distributed this week.

With much input from the Bureau of Personnel and Central Management Information Center, we are able to provide to agencies more detailed information than has been available to them before now. On a quarterly basis, we will receive and distribute to each agency basic data. Each bureau will have listed each bargaining unit geographical location with employes numerically identified by race and sex. These reports will show the currrent agency work force so that disparities are highlighted and plans can be made to correct identified problems.

Each agency is to review its work force data--determine potential appointments based on budget, increased complement and pertinent personnel actions affecting the agency's work force. Goals and timetables are to be established to correct imbalances for a three-year affirmative action plan. Short-term goals are to be set to cover each of the three interim years of the long-range goals. I must emphasize, only realistic objectives and goals that have a chance for success, should be established.

To have labor force availableity informaiton, to have agency work force data available provides management additional tools for manpower planning to maintain agency mission to provide a public service. We are optimistic and have faith in the sense of fair play which is a part of the tradition of which I spoke at the beginning. Achieveing the goals of hiring, retaining, training and promoting qualified women, minorities and in every phase of the Commonwealth work force, to completely eradicate job and wage disparities is the impact of the affirmative action program.

APPENDIX

Manpower Symposium Participants
Hershey Motor Lodge and Convention Center, October 14-15, 1976

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